
IKNX
INGINEERING
ALDI
ALDI LOGISTICS PLATFORM CONTROL PROJECT

THE PROJECT

The project we present is the design, installation, programming and commissioning of the KNX supervision and control system of 2 newly built logistics platforms and an expansion and renovation of another logistics plant of the supermarket company ALDI for the storage and distribution of merchandise that will later be sold in supermarkets throughout Spain.

These logistics centers are located in Dos Hermanas (Seville), Sagunto (Valencia) and Miranda de Ebro (Burgos), all of them in Spain.

All logistics centers are controlled from the ALDI company headquarters in Barcelona.

Photo ALDI logistics center in Miranda de Ebro (Burgos)

Photo ALDI logistics center in Sagunto (Valencia)

Photo ALDI logistics center in Dos Hermanas (Seville)

OUR COMPANY

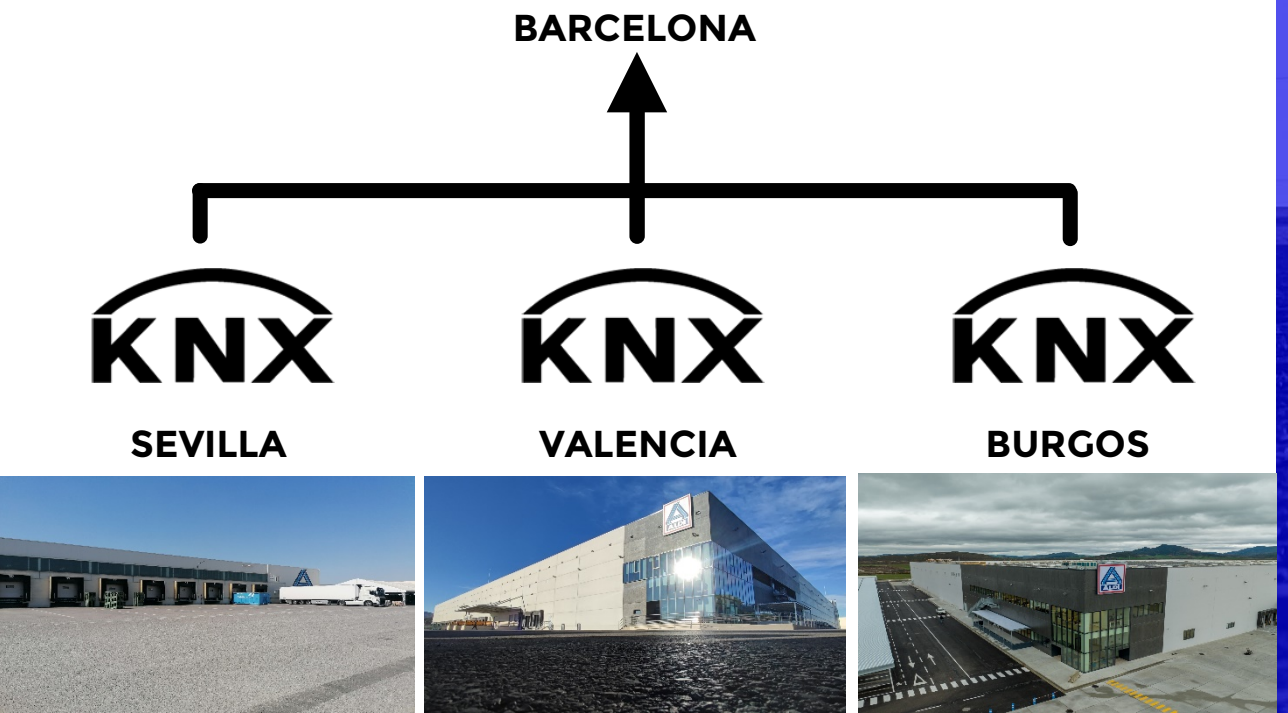
We are IKNX Engineering, a Spanish company with more than 15 years of experience in installations and projects under the KNX standard.

Not only we like big challenges like this project but we also love to show step by step how we do our installations. On our YouTube channel we teach our followers all the secrets of the KNX world.

The project we present today has been one of the most creative designs we have done so far because we have been able to integrate other systems such as Bacnet, Modbus, DALI, etc. into a system whose main pillar is the KNX standard.

We have loved "playing" with the hundreds of devices from all the manufacturers that have participated in this project. We have thousands of anecdotes. We have laughed and we have cried, we have been days without sleep and we have also been many days away from home without seeing our families. And although all this has been left behind, we can say today that this project has been the most wonderful work we have created.

IKNX Team



PROJECT DESIGN

For the design of this project, each logistics centre has been designed to work independently, so that in case of failure of a logistics plant, the rest of the plants continue to operate without being affected.

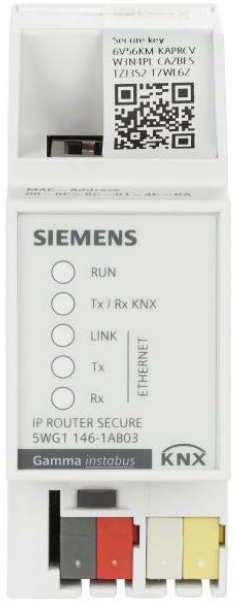
All centres are equipped with a main control system based on the KNX standard. By means of the supervision system, the maintenance technicians of each plant carry out the control and constant supervision operations 24 hours a day, 365 days a year.

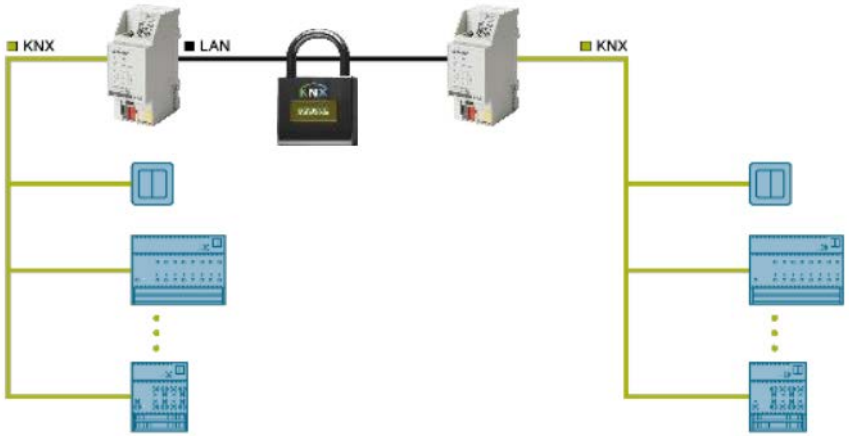
From the company's headquarters in Barcelona, technical managers can perform maintenance checks at each plant, analyse graphs, statistics, circuit status and technical alarms.

The system is able to make comparisons between different installations and to draw statistics.


57

KNX SECURE





PROJECT SAFETY

The project has taken into account safety levels commensurate with the size of the installation.

To ensure secure communication, ALDI's IT department has worked closely with our team of engineers to design a fully secure system, complemented by KNX Secure technology which guarantees encryption of information and blocks unauthorised access to the system.

Installation and assembly techniques have also been used to prevent the devices from being tampered with by unauthorised personnel.


2
1

SIEMENS

thinknx

LOYTEC
A Delta Group Company

Intesis®
BY HMS NETWORKS

iddero

Zennio®

ABB

AIRZONE

B.E.G.

MEAN WELL

A MULTI-MANUFACTURER PROJECT

The project has been carried out with hundreds of devices from different manufacturers under the same standard.

The solutions given in the project have been studied looking for the most suitable KNX device on the market for each need.

One of the most important things that have been taken into account is that the devices installed in electrical panels and cooling chambers must have as an important characteristic the ability to work in extreme humidity and temperature environments..

Currently, the project is fully alive, allowing for constant extensions of new solutions for the daily needs of working in logistics plants. This brings the number of KNX manufacturers that have collaborated in this project to over a dozen.


67 1
044
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68 4
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MULTI-PROTOCOL

One of the biggest challenges of the project was to ensure that all the installed equipment could *talk* to each other.

It should be borne in mind that in a project of this magnitude we can find fire protection systems, exhausters, air conditioning, water pumping, industrial refrigeration, electrical installations, extraction and ventilation systems, lighting systems, door control systems, etc.

In order to be able to group all communications, different gateways to other communication languages such as Modbus 485, Modbus TCP-IP, Bacnet, DALI, etc. have been used.

A supervision and control unit installed in each of the logistics plants acts as a link between all the communication protocols and the user who monitors and controls the plant according to the needs of the moment.

BREEAM CERTIFICATION

The project has been designed to meet the requirements in order to obtain the recognised and prestigious BREEAM certification.

BREEAM promotes sustainable building construction that results in savings, health and environmental benefits for everyone involved in the lifetime of the building.

The points that have been addressed in our project are as follows:

- ✓ To ensure the visual comfort of the people working in the logistics plant thanks to the automatic lighting control system.
- ✓ To ensure the thermal comfort of all persons thanks to climate control.
- ✓ To ensure air quality throughout the building by monitoring and storing data in real time and sending the necessary alerts in the event of non-compliance with current regulations.
- ✓ To control of drinking water use throughout the building.
- ✓ To promote efficient electricity consumption, thus reducing CO2 emissions into the atmosphere.

BREEAM®


44
45
46
SALIDA

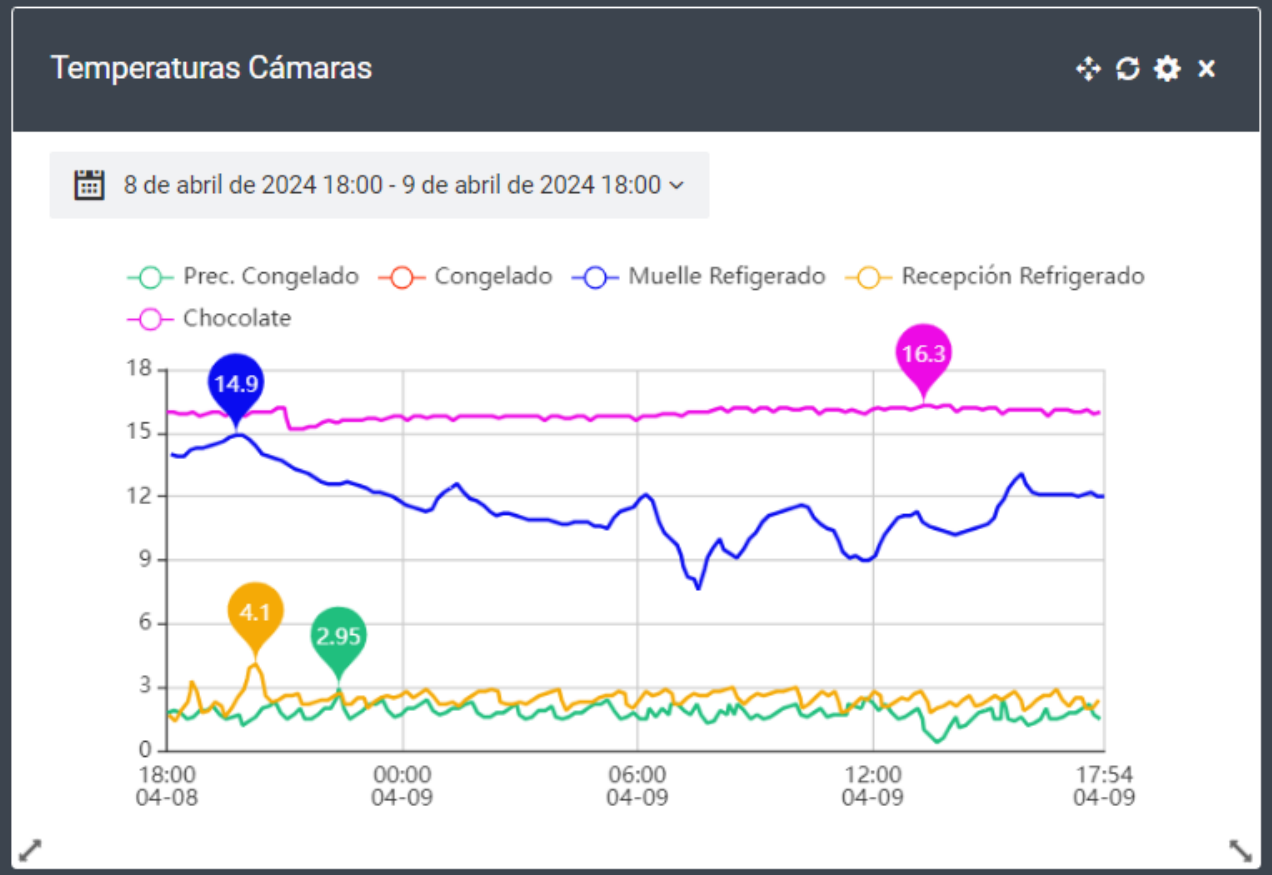
REFRIGERATED CHAMBERS

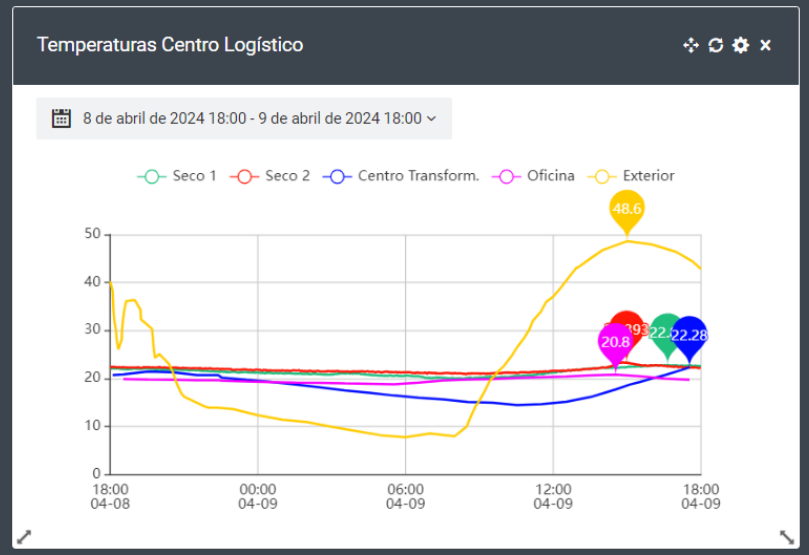
All temperatures in the refrigerated chambers where the goods that will later reach the shops are stored are monitored in real time.

The system is capable of detecting industrial refrigeration equipment alarms and out-of-range temperatures. Once the alarm occurs, the system notifies the maintenance team via email, push message on Telegram and activates the plant's audible alarms.

All data is stored in the cloud to record product traceability and ensure quality control.

The data can be viewed from the smartphones, tablets and PCs of the maintenance team's technicians.





CONTROL OF REFRIGERATED CHAMBER DOORS

The system is able to detect the opening and closing of the refrigeration chambers. Once the door has been opened, a timer counts the opening time so that if a setpoint value is exceeded, an alarm is sent to the maintenance team.

The door control is intended for efficient use of energy in industrial refrigeration. It is also essential to ensure the traceability of the temperature of food products that customers can later purchase in different shops throughout the country.

CONTROL OF DEHUMIDIFYING EQUIPMENT

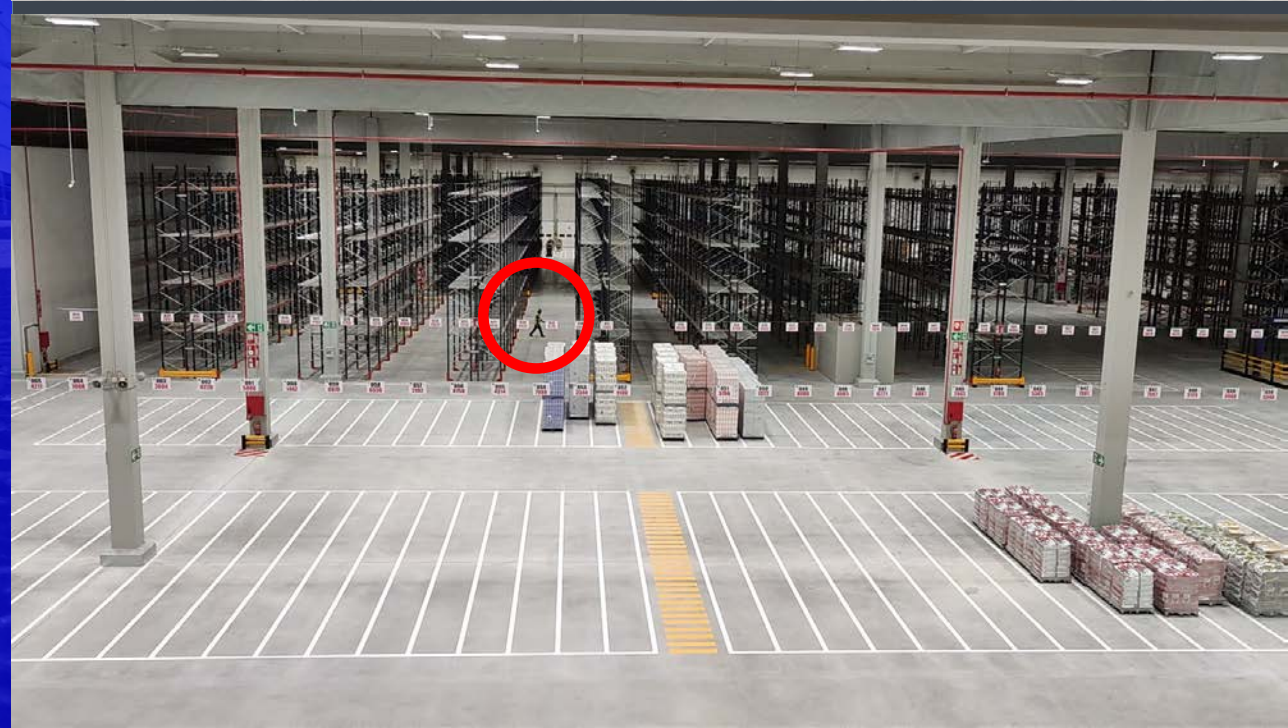
Dehumidifiers prevent the formation of ice on the floor near the doors of cold rooms. These units have very high electrical consumption, so it is essential that the system automatically switches these units on and off when it detects the opening and closing of the doors of the refrigerated chambers.

LIGHTING CONTROL

All the logistics plants have an advanced lighting control system using DALI technology. The system allows luminaires to be switched on according to the detection of people passing by, working hours and brightness due to natural light, etc.

The offices are equipped with constant lighting control for visual comfort. The opening and closing of blinds modifies the natural light coming in from windows and the light from the luminaires is automatically adapted.

Thousands of luminaires are controlled and monitored from the system and their alarm messages are supervised.

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7785
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9070
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6644
067
2200

AIR CONDITIONING, EXHAUST AND AIR QUALITY CONTROL

The project has been designed to meet the requirements for obtaining the recognised and prestigious BREEAM certification, which is why thermal comfort is important.

The entire air-conditioning and extraction system is automatically controlled according to the values sent by the various sensors installed throughout the plant.

It is also possible to monitor the alarm states of air conditioning and exhaust air equipment.

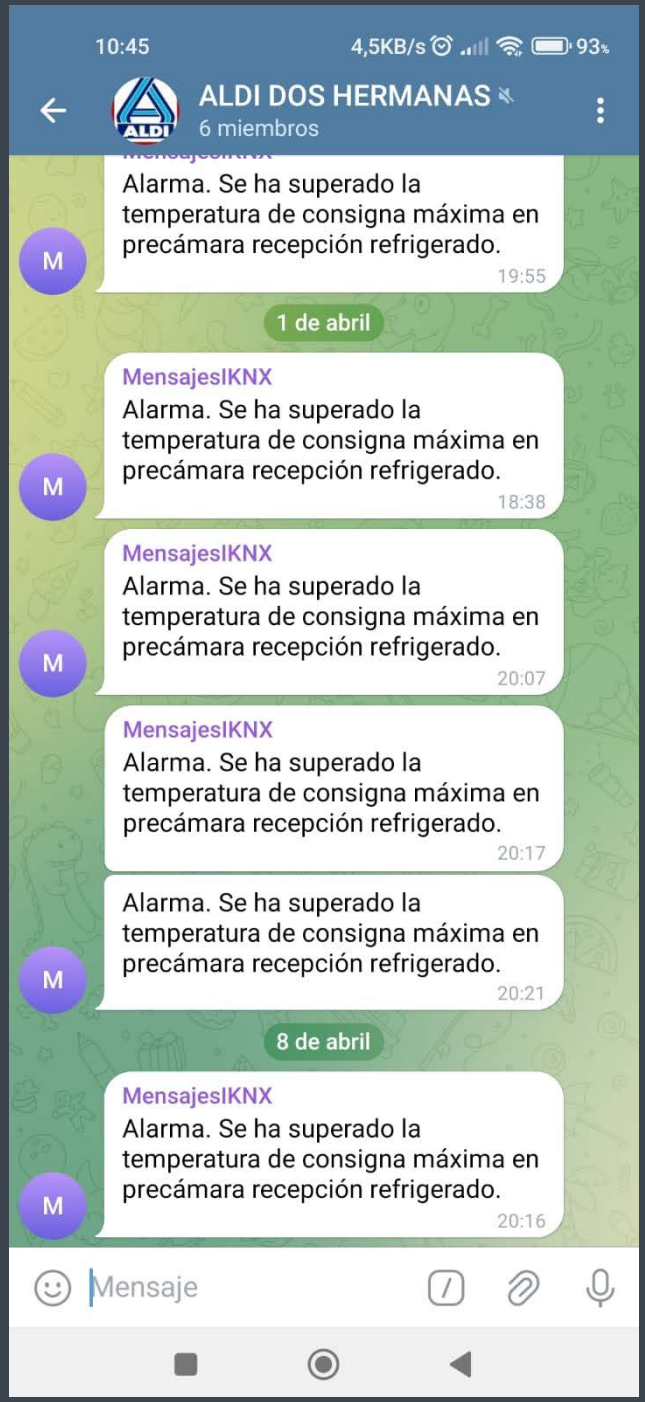
The magnitudes measured by the sensors are recorded in the system and can be monitored in graphs. Reports in Excel or pdf format can be exported as well.

COMPATIBILITY WITH THIRD PARTY PLATFORMS

The most widely used tool for receiving alarm messages by the entire maintenance team is a Telegram group where alerts are received early enough to be able to react to real problems.

This tool is fully compatible with the KNX system and is highly valued for its easy use as it is an everyday tool for everyone working in the industrial plant.

There are different Telegram groups to segment the different logistics plants.




ALDI

MONITORING AND ANALYSIS OF THE PHOTOVOLTAIC PRODUCTION SYSTEM

All logistics plants have a photovoltaic system installed on the roof. This system is constantly monitored and supervised by the main control system.

All energy production data are recorded for subsequent analysis of the performance and amortisation of the photovoltaic project.

Registro General Tensión Fase-Neutro

8 de abril de 2024 17:03 - 9 de abril de 2024 17:03

Descargar

Buscar

Marca de tiempo	Tensión L1-N (V)	Tensión L2-N (V)	Tensión L3-N (V)
2024-04-08 17:11	239,8	238,7	238,6
2024-04-08 17:27	235,9	235,5	235.2
2024-04-08 17:42	237,6	236,3	236,6
2024-04-08 17:57	239.1	238.2	238,7
2024-04-08 18:12	238,8	238.2	238.2
2024-04-08 18:27	234.3	234.2	233,9
2024-04-08 18:42	236.1	236.2	235,9
2024-04-08 18:57	236.2	235,9	235,8
2024-04-08 19:13	238.1	237	236,9
2024-04-08 19:28	237,3	235,6	235,8

Mostrando 1 a 96 de 96 entradas

MONITORING AND CONTROL OF THE GENSET SYSTEM

The logistics plants are equipped with generators to supply the plants in the event of a power failure.

These gensets are monitored from the control system and values such as genset status, fuel tank level, engine alarms, etc. are supervised.

When switching from the main power grid to genset, an action protocol is triggered in the monitoring system to alert the maintenance team that a power failure event has occurred.


Electra Molins
GRUPOS ELECTRÓGENOS
Electra Molins
GRUPOS ELECTRÓGENOS

SUPERVISION AND CONTROL OF INDUSTRIAL REFRIGERATION PRODUCTION

The logistics plants are equipped with refrigerated chambers where goods are stored at low temperatures.

In order to maintain this temperature, industrial refrigeration plants that work 24 hours a day 365 days a year are needed.

The system is constantly monitoring that this equipment is working properly and in case of any malfunction an alarm is sent to the control system quickly.

The alarms that we can receive can be of different types depending on whether they are related to compressors, engines, industrial gas leaks, tank levels, etc.

SMOKE EXHAUST CONTROL AND FIRE FIGHTING SYSTEM

The opening and closing of the exhausts is controlled according to the established conditions. The entire fire protection system is also monitored, which will give an alert of the sector affected by a fire and will warn all the personnel of the logistics plant for a possible evacuation of the work area.

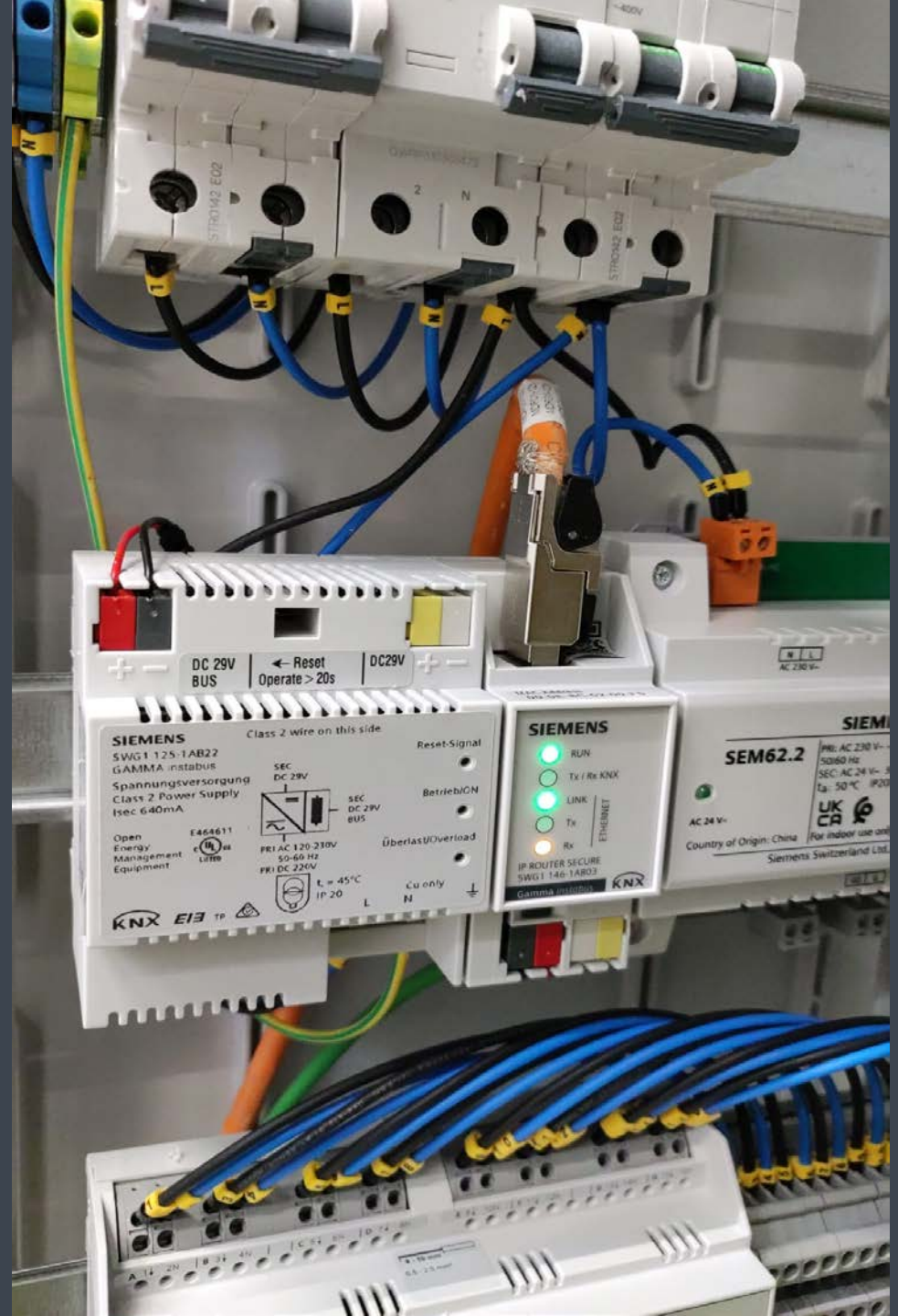
Each logistics floor is divided into different zones, each of which is completely independent of the others.


3
2
1
ALDI

MONITORING AND CONTROL OF ELECTRICAL PANELS

The states of the electrical protections of the different electrical panels are monitored. The statuses are also forced to remotely close and open for maintenance manoeuvres.

All alerts are monitored and sent by email, Telegram group or can even be assigned to visual and/or audible alarms throughout the plant.



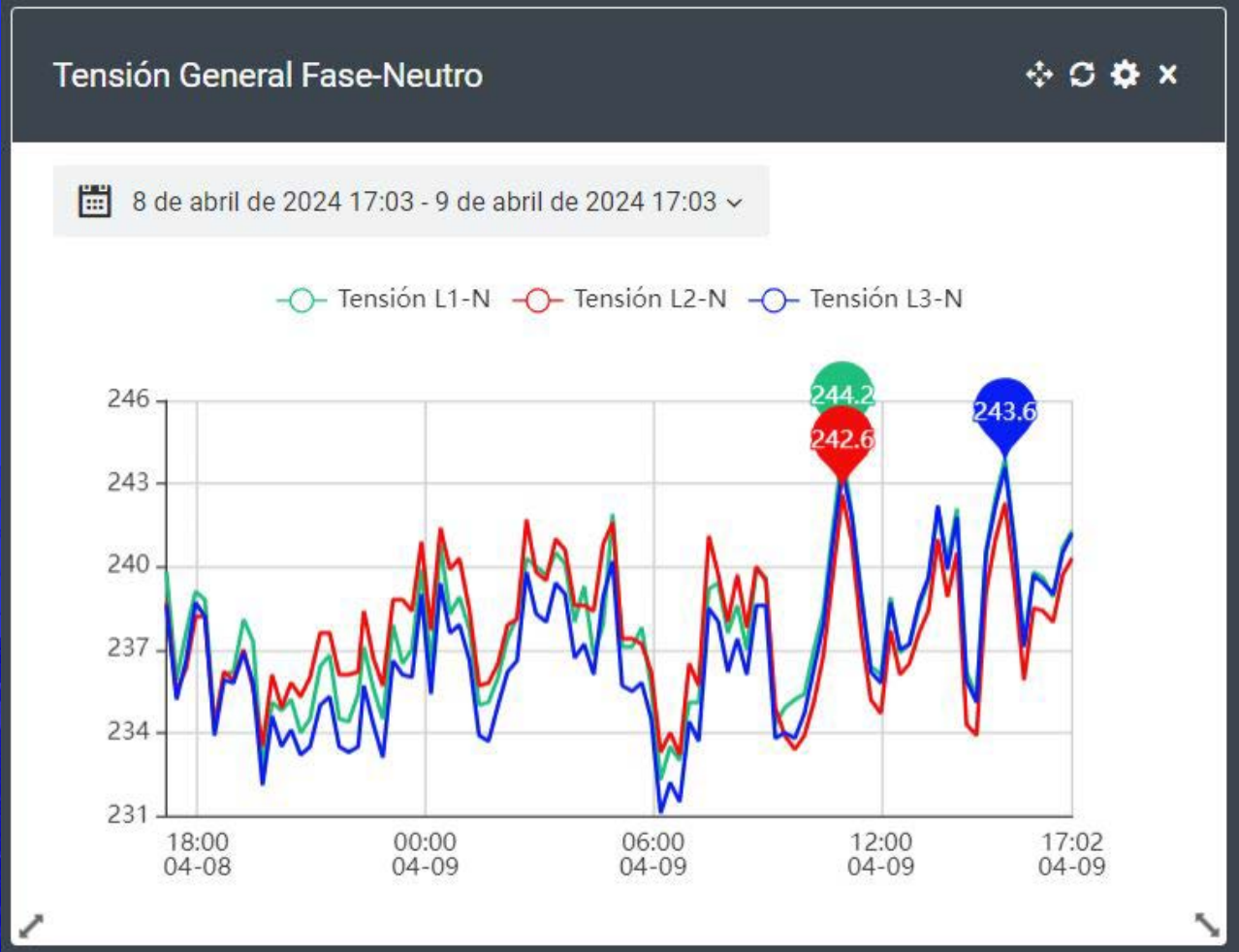
MONITORING OF ELECTRICITY AND WATER CONSUMPTION

The system has a powerful data storage system with a copy in the cloud to be able to record all the historical consumption of electricity, water, etc.

Through an user-friendly interface, the customer can monitor graphs over time, perform analysis and statistics.

All data can be exported in different formats such as Excel, pdf, etc.

Cloud-based data logging allows comparisons to be made between the different logistics centres in order to know which is the most efficient and what objectives can be set for the following year.

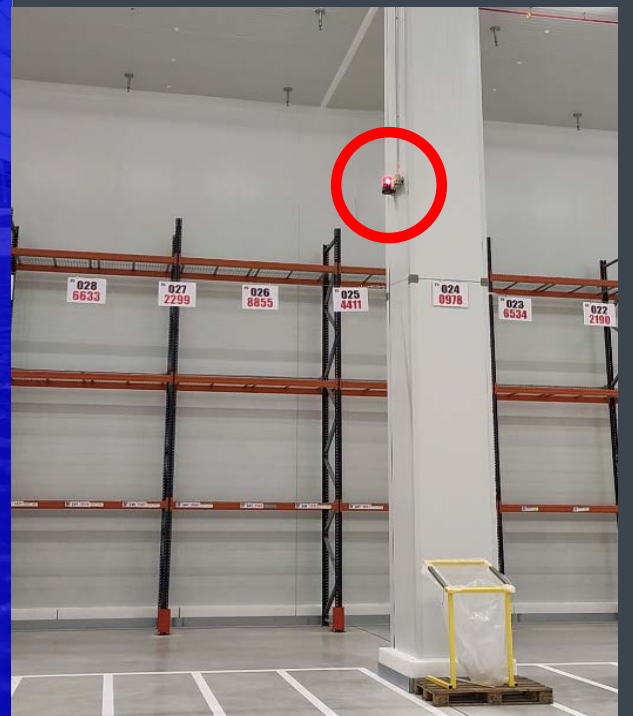


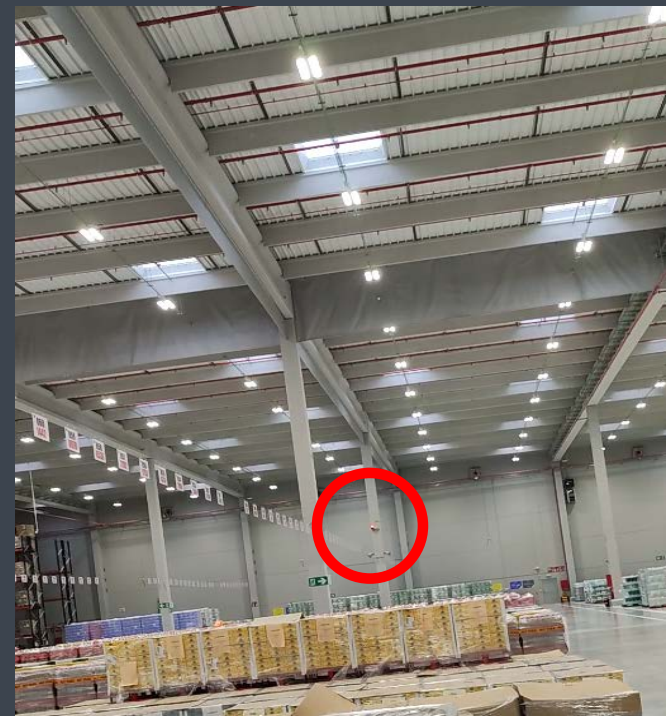
EVACUATION ALARM SYSTEM

Hundreds of people work in each of the logistics plants. In these places, anomalies such as industrial gas leaks, fire, flooding, etc. can occur. The control system is constantly monitoring the data from the different sensors installed throughout the plant. Evacuation alarms can be produced under certain premises assigned by the technical team.

Evacuation alarms indicate that all personnel in the area must leave their workstation immediately. These alarms are placed in different sectors in order to be able to decide whether to evacuate a specific area or the entire plant.

The system can also decide whether to activate only audible alarms or to add visual alarms as well.






ETS™ Centro Logístico ALDI Sagunto (Valencia)
ETS
Editar Entorno de Trabajo Puesta en Marcha Diagnósticos Apps Ventana
Cerrar Proyecto Deshacer Rehacer Informes Entorno de trabajo Catálogos Diagnósticos
Edificios
Añadir Canales Borrar Programar Info Restablecer Desprogramar Imprimir
Edificios
Carpetas Dinámicas
Centro Logístico ALDI Sagunto (Valencia)
1. CUARTOS TÉCNICOS
2. OFICINA ADMINISTRACIÓN
00 DISPOSITIVOS A PROGRAMAR
PLANTA ALTA
PLANTA BAJA
CUARTO DE INSTALACIONES
OFICINAS PLANTA BAJA
3. OFICINA EXPEDICIÓN
4. OFICINA RECEPCIÓN
5. SECO
6. TALLER
7. GARITA VIGILANTE
8. CÁMARAS DE FRÍO
Funciones
Se Dirección Estancia
Descripción
Programa de Aplicación
Div Prg Par Grp Ctg Fabricante
00 DISPOSITIVOS A PROGRAMAR
PRM-KNX-OX-4W
PRM-KNX-OX-4W
PRM-KNX-OX-4W
Generación 7
B.E.G.
Propiedades
Configuración Comentarios Información
Catálogos Aplicación
PD4N-KNXs-ST-FT
B.E.G.
Número de Pedido 93514
Montaje en carril DIN No
Corriente del bus 12.5 mA
Buscar y Reemplazar
Entornos de Trabajo
Tareas Pendientes
Operaciones Pendientes
Historial para Deshacer
Dispositivos
Parámetros
Funciones
00 DISPOSITIVOS A PROGRAMAR
USB Interfaz (MDRC)
KNX
ETS DONGLE
www.knx.org
MOLERO
MS
SW
1.2.57
1.2.58
1.2.53
1.2.54
1.2.38
1.2.13

SUPERVISION AND MONITORING SYSTEM

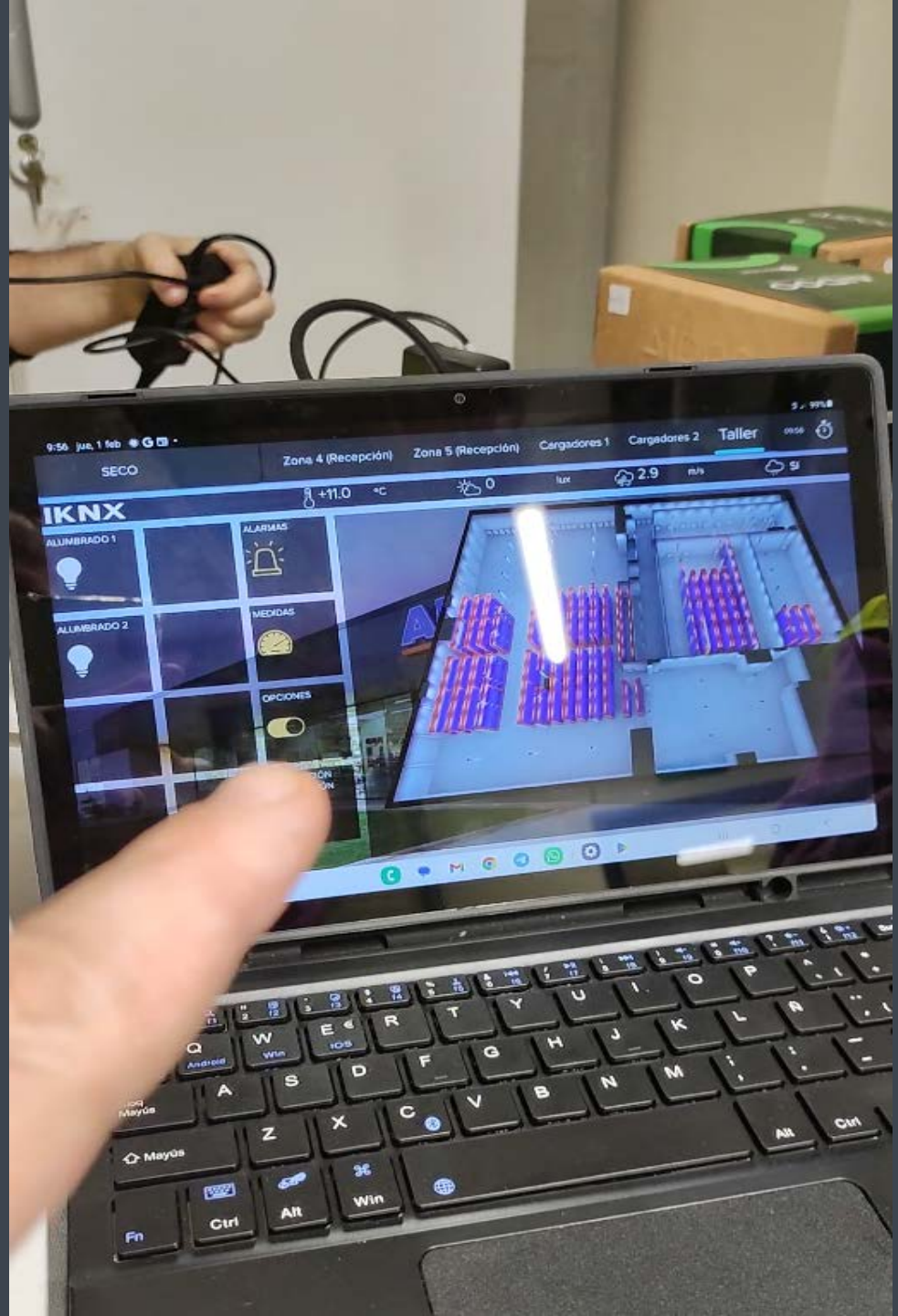
The most important part of a control system is the visual or graphical part with which the operator interacts to perform control, analysis or monitoring operations.

The project design is prepared to access the visualisation system from a PC, Tablet or Smartphone.

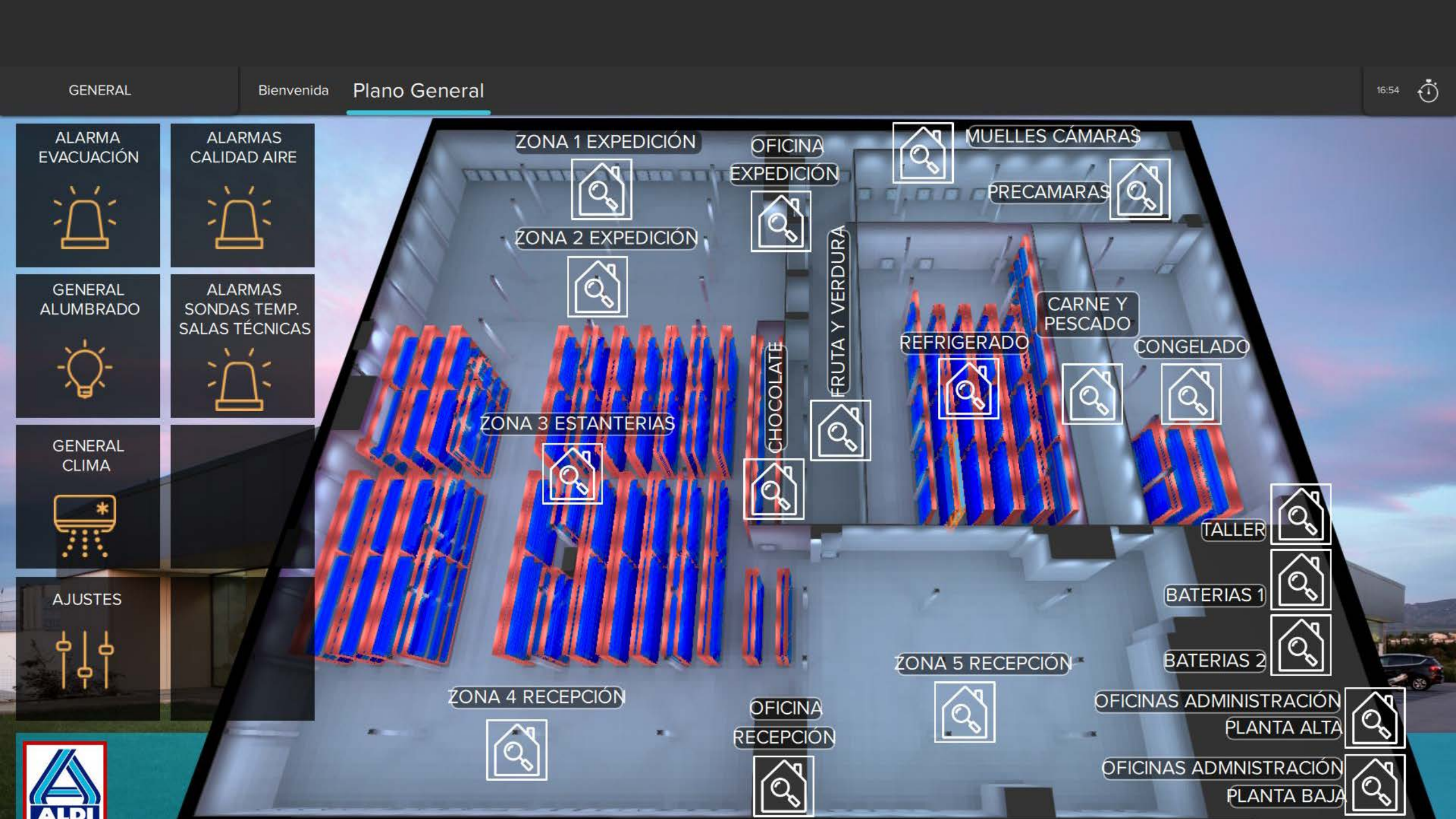
The screen size adapts to the device without having to change the resolution.

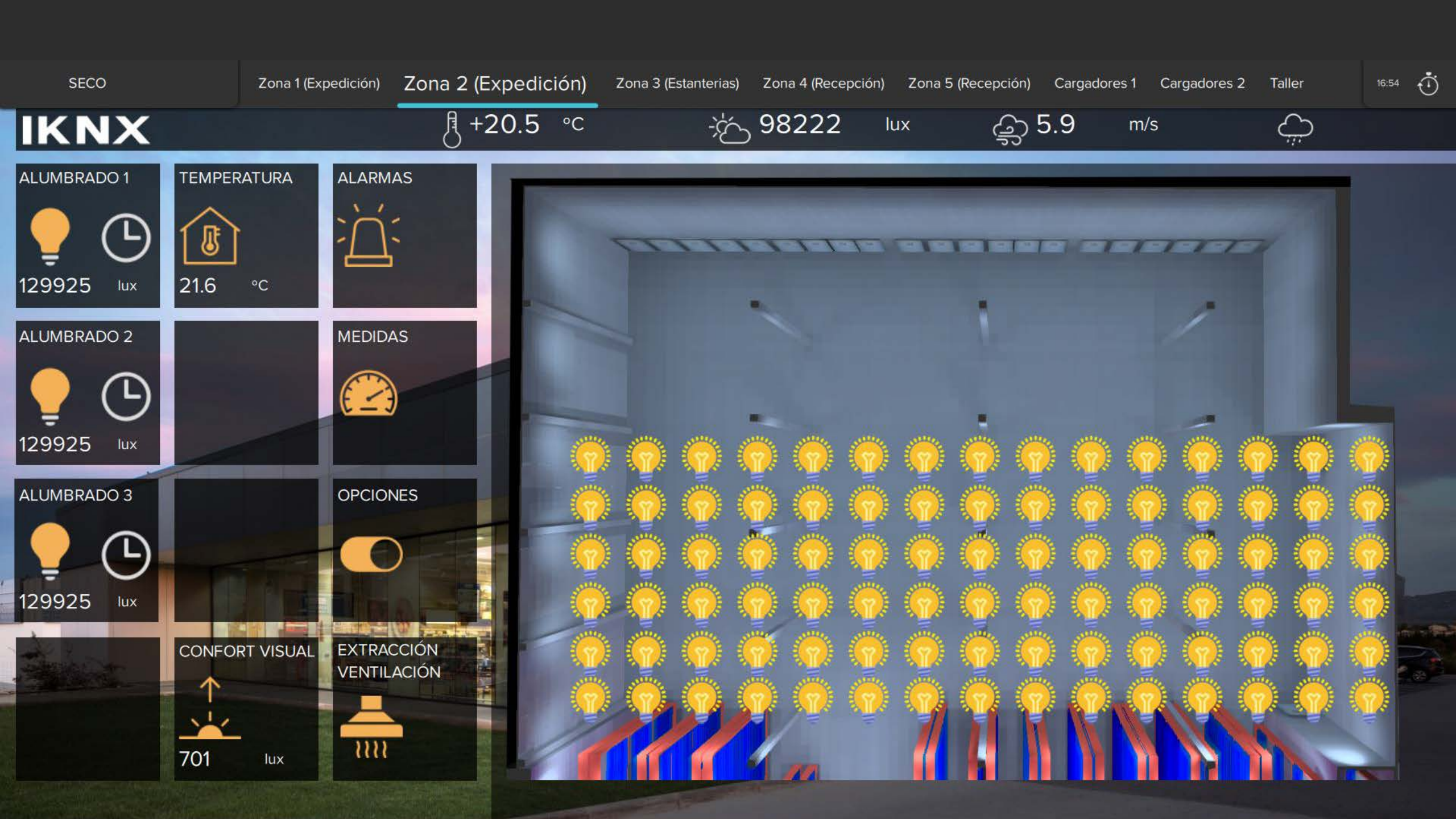
All the plans are made in 3D so that the rooms can be easily located. The choice of pictograms or icons identifying the functions have been chosen bearing in mind the type of user who can control the system. The colours of the alarm texts, values and instructions have been selected on the basis of specific premises. In short, nothing has been left to chance, everything has a specific reason.

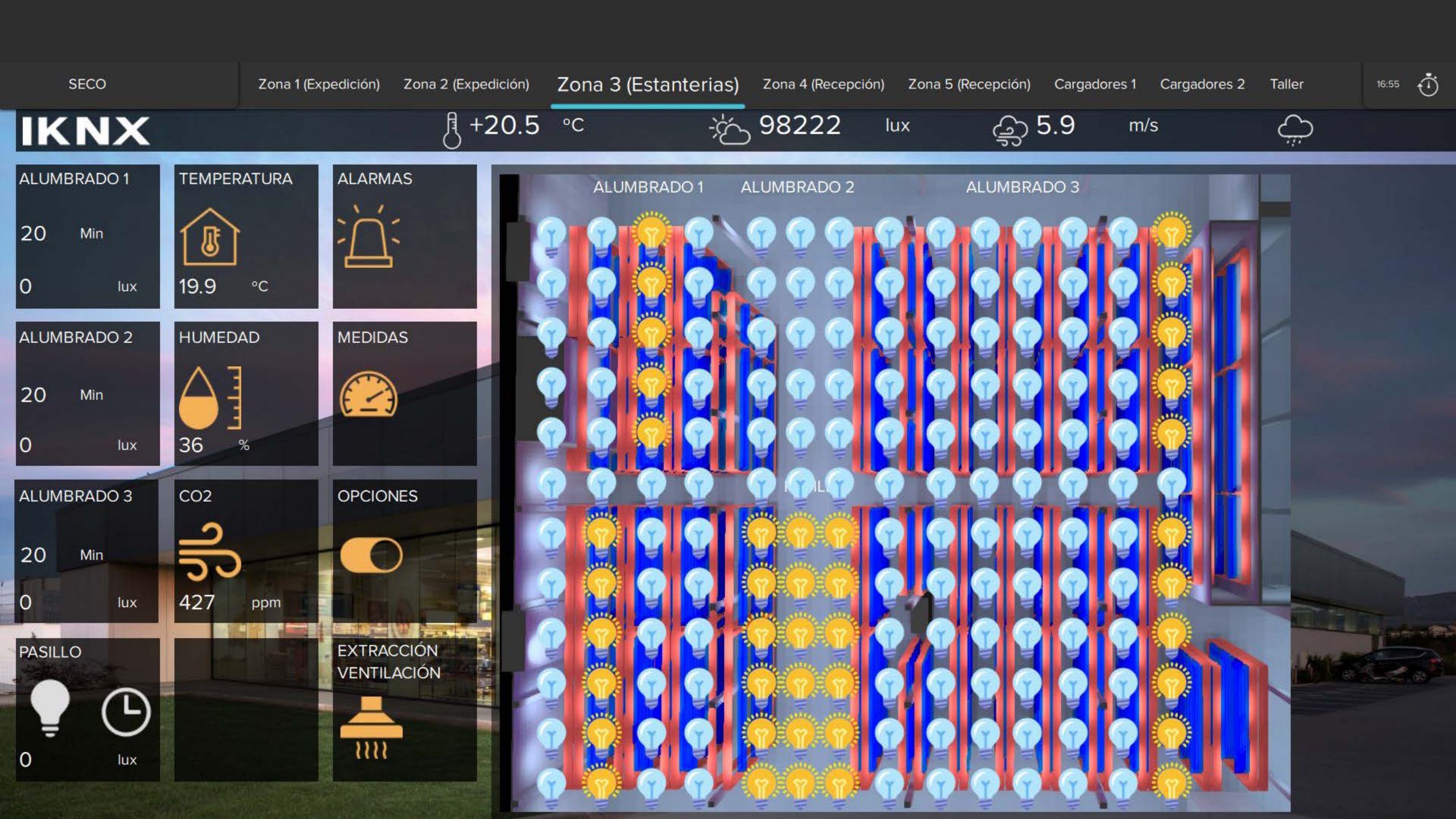
The following slides show some views of the visual part of the different projects of the logistics plants.



BIENVENIDOS
WILLKOMMEN


GENERAL
Bienvenida
Plano General
16:54
ALARMA EVACUACIÓN
ALARMAS CALIDAD AIRE
GENERAL ALUMBRADO
ALARMAS SONDAS TEMP. SALAS TÉCNICAS
GENERAL CLIMA
AJUSTES
ZONA 1 EXPEDICIÓN
OFICINA EXPEDICIÓN
MUELLES CÁMARAS
PRECAMARAS
ZONA 2 EXPEDICIÓN
FRUTA Y VERDURA
CARNE Y PESCADO
REFRIGERADO
CONGELADO
CHOCOLATE
ZONA 3 ESTANTERIAS
TALLER
BATERIAS 1
BATERIAS 2
ZONA 5 RECEPCIÓN
ZONA 4 RECEPCIÓN
OFICINA RECEPCIÓN
OFICINAS ADMINISTRACIÓN PLANTA ALTA
OFICINAS ADMNISTRACIÓN PLANTA BAJA


SECO
Zona 1 (Expedición)
Zona 2 (Expedición)
Zona 3 (Estanterias)
Zona 4 (Recepción)
Zona 5 (Recepción)
Cargadores 1
Cargadores 2
Taller
16:54
IKNX
+20.5 °C
98222 lux
5.9 m/s
ALUMBRADO 1
129925 lux
TEMPERATURA
21.6 °C
ALARMAS
ALUMBRADO 2
129925 lux
MEDIDAS
ALUMBRADO 3
129925 lux
OPCIONES
CONFORT VISUAL
701 lux
EXTRACCIÓN
VENTILACIÓN


SECO
Zona 1 (Expedición)
Zona 2 (Expedición)
Zona 3 (Estanterias)
Zona 4 (Recepción)
Zona 5 (Recepción)
Cargadores 1
Cargadores 2
Taller
16:55
IKNX
+20.5 °C
98222 lux
5.9 m/s
ALUMBRADO 1
20 Min
0 lux
TEMPERATURA
19.9 °C
ALARMAS
ALUMBRADO 2
20 Min
0 lux
HUMEDAD
36 %
MEDIDAS
ALUMBRADO 3
20 Min
0 lux
CO2
427 ppm
OPCIONES
PASILLO
0 lux
EXTRACCIÓN
VENTILACIÓN
ALUMBRADO 1
ALUMBRADO 2
ALUMBRADO 3

SECO | Zona 1 (Expedición) | Zona 2 (Expedición) | Zona 3 (Estanterias) | Zona 4 (Recepción) | Zona 5 (Recepción) | Cargadores 1 | Cargadores 2 | Taller

16:55

IKNX

+20.5 °C | 98222 lux | 5.9 m/s

ALUMBRADO 1
20 Min
0 lux

TEMPERATURA
19.9 °C

ALARMAS

ALUMBRADO 2
20 Min
0 lux

HUMEDAD
36 %

ALUMBRADO 3
20 Min
0 lux

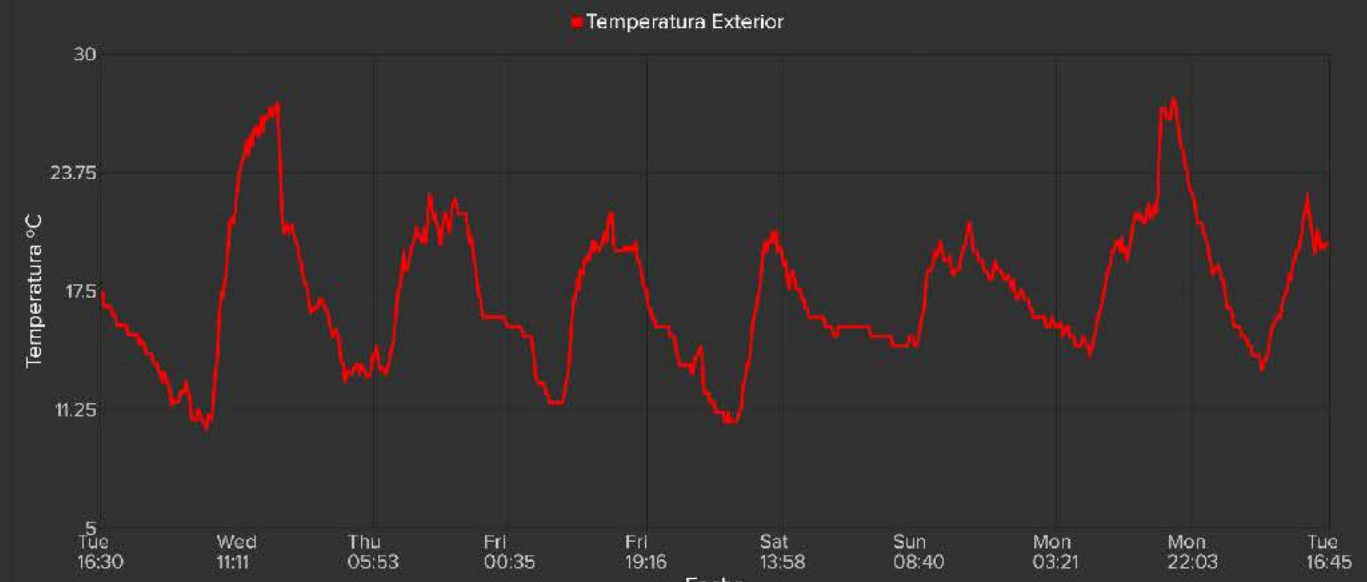
CO2
427 ppm

PASILLO
0 lux

EXTRACCION VENTILACIÓN

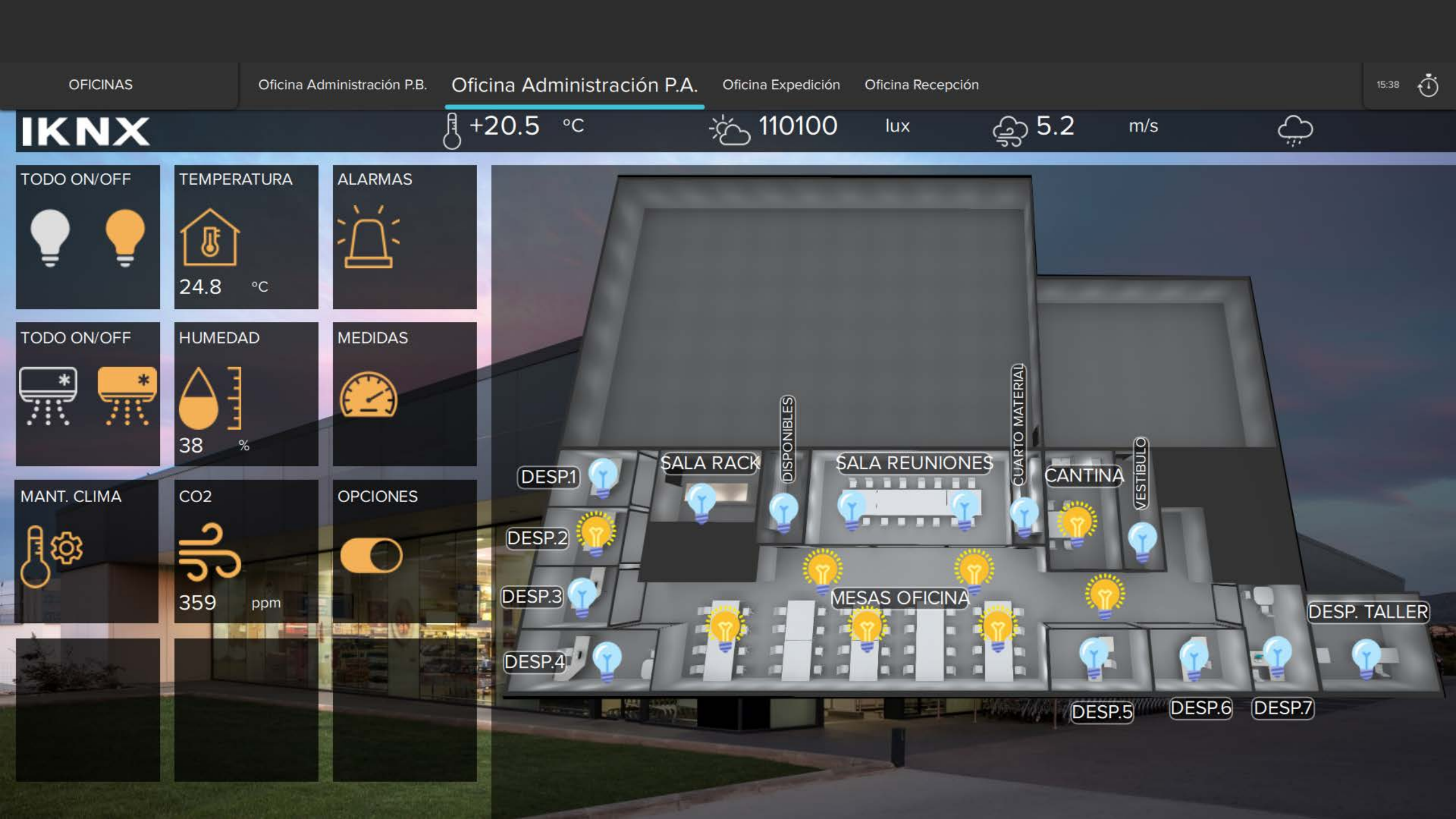
ALUMBRADO 1 ALUMBRADO 2 ALUMBRADO 3

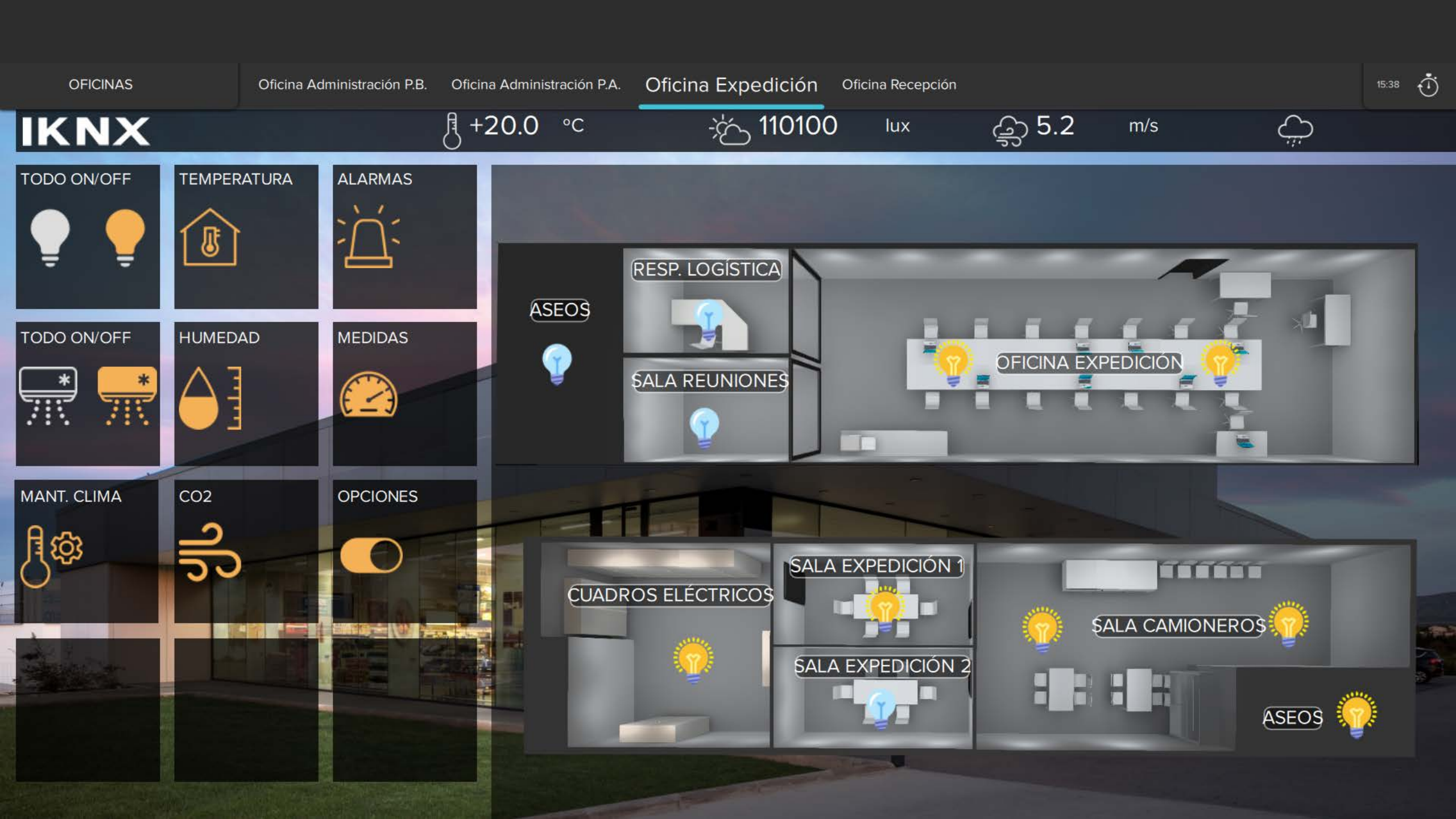
GRÁFICA ALMACENAMIENTO DE DATOS

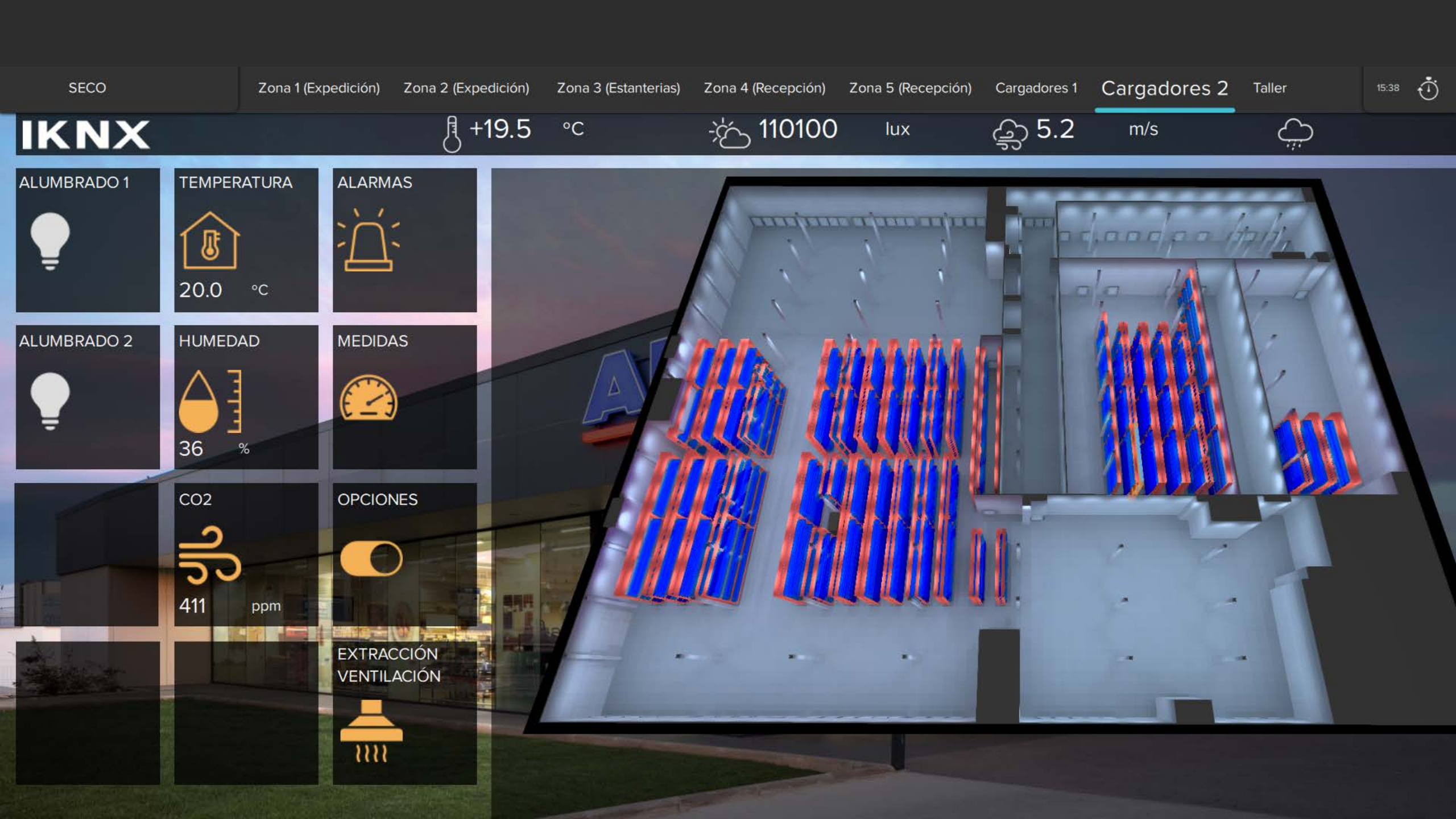


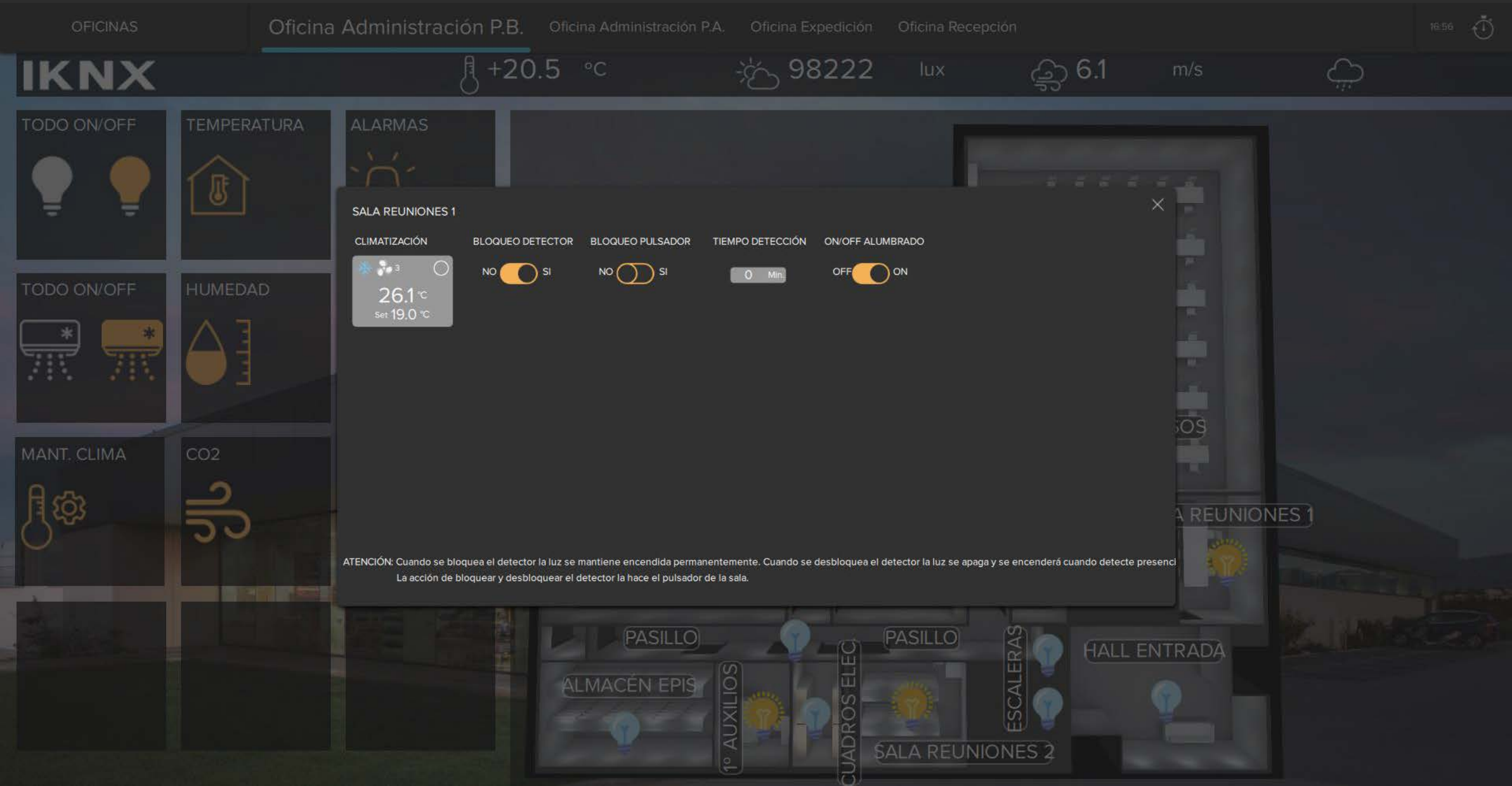
From 2024 abr. 02 16:43 to now


OFICINAS
Oficina Administración P.B.
Oficina Administración P.A.
Oficina Expedición
Oficina Recepción
16:55
IKNX
+20.5 °C
98222 lux
3.8 m/s
TODO ON/OFF
TEMPERATURA
ALARMAS
TODO ON/OFF
HUMEDAD
MEDIDAS
MANT. CLIMA
CO2
OPCIONES
ALDI
COMEDOR
SALA MULTIUSOS
VEST. MASCULINO
VEST. FEMENINO
CUARTO IT
SALA REUNIONES 1
PASILLO
PASILLO
ALMACÉN EPIS
1º AUXILIOS
CUADROS ELEC.
ESCALERAS
HALL ENTRADA
SALA REUNIONES 2

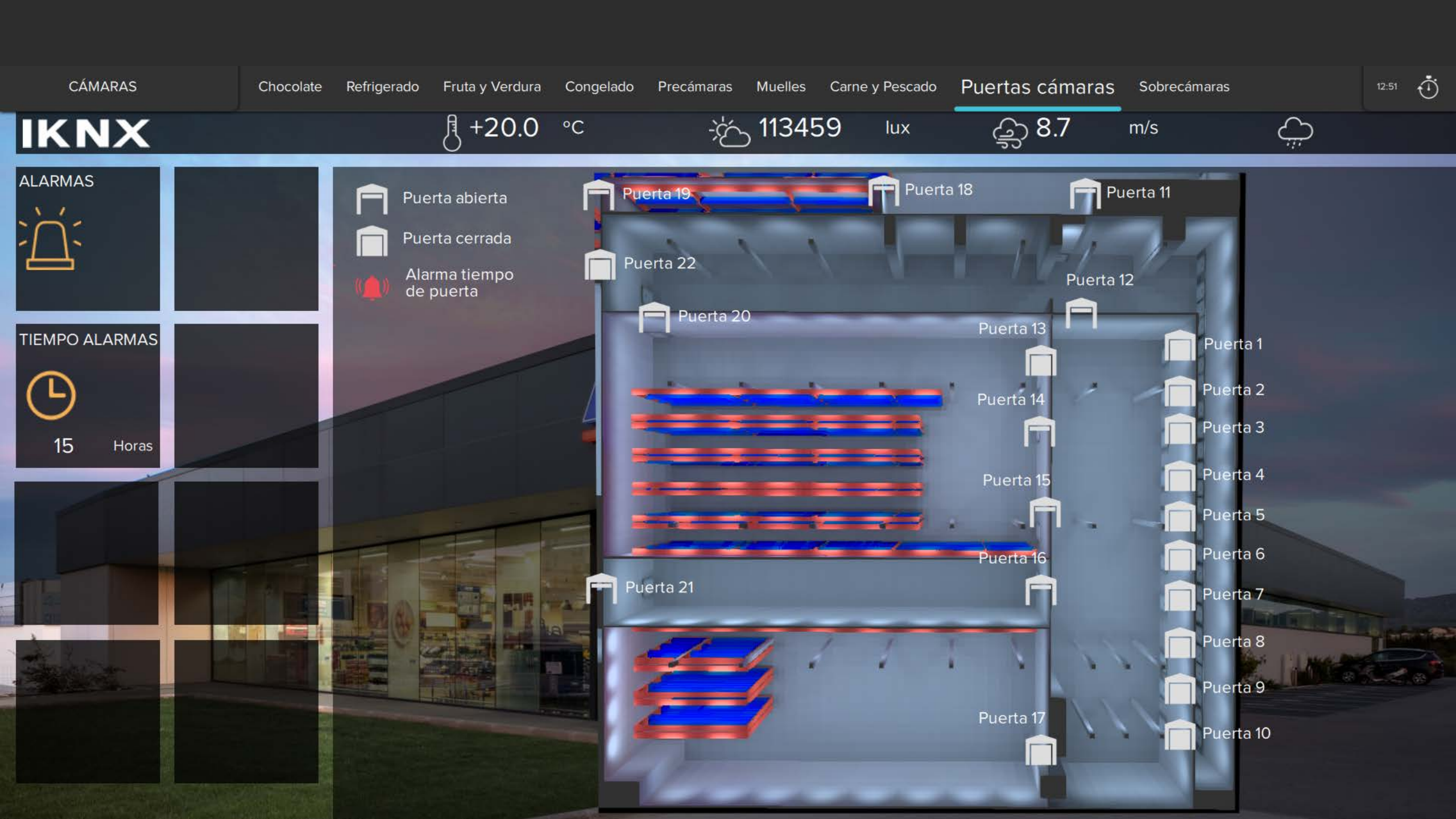

OFICINAS
Oficina Administración P.B.
Oficina Administración P.A.
Oficina Expedición
Oficina Recepción
15:38
IKNX
+20.5 °C
110100 lux
5.2 m/s
TODO ON/OFF
TEMPERATURA
24.8 °C
ALARMAS
TODO ON/OFF
HUMEDAD
38 %
MEDIDAS
MANT. CLIMA
CO2
359 ppm
OPCIONES
DESP.1
SALA RACK
DISPONIBLES
SALA REUNIONES
CUARTO MATERIAL
CANTINA
VESTÍBULO
DESP.2
DESP.3
MESAS OFICINA
DESP. TALLER
DESP.4
DESP.5
DESP.6
DESP.7


OFICINAS
Oficina Administración P.B.
Oficina Administración P.A.
Oficina Expedición
Oficina Recepción
15:38
IKNX
+20.0 °C
110100 lux
5.2 m/s
TODO ON/OFF
TEMPERATURA
ALARMAS
TODO ON/OFF
HUMEDAD
MEDIDAS
MANT. CLIMA
CO2
OPCIONES
ASEOS
RESP. LOGÍSTICA
SALA REUNIONES
OFICINA EXPEDICIÓN
CUADROS ELÉCTRICOS
SALA EXPEDICIÓN 1
SALA EXPEDICIÓN 2
SALA CAMIONEROS
ASEOS


SECO
Zona 1 (Expedición)
Zona 2 (Expedición)
Zona 3 (Estanterias)
Zona 4 (Recepción)
Zona 5 (Recepción)
Cargadores 1
Cargadores 2
Taller
15:38
IKNX
+19.5 °C
110100 lux
5.2 m/s
ALUMBRADO 1
TEMPERATURA
20.0 °C
ALARMAS
ALUMBRADO 2
HUMEDAD
36 %
MEDIDAS
CO2
411 ppm
OPCIONES
EXTRACCIÓN
VENTILACIÓN

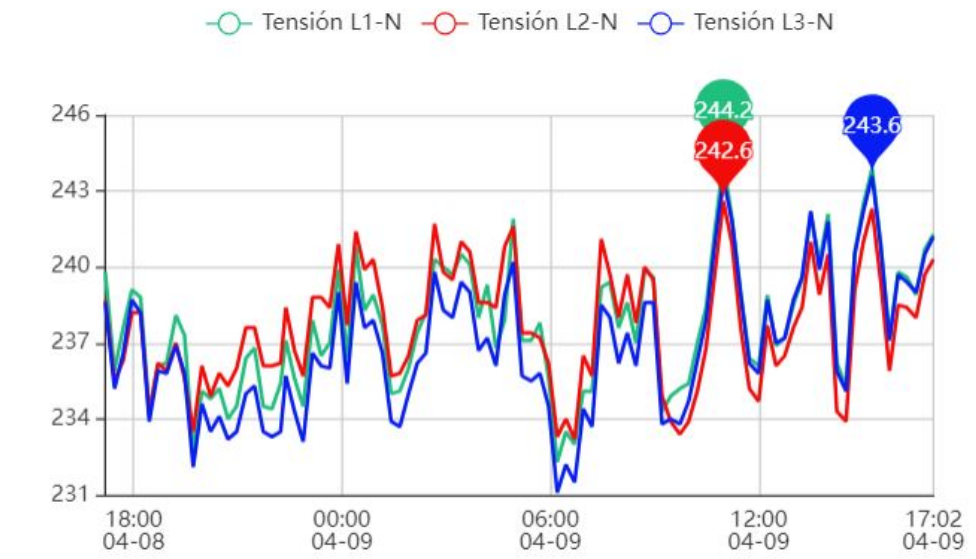

OFICINAS
Oficina Administración P.B.
Oficina Administración P.A.
Oficina Expedición
Oficina Recepción
16:56
IKNX
+20.5 °C
98222 lux
6.1 m/s
TODO ON/OFF
TEMPERATURA
ALARMAS
TODO ON/OFF
HUMEDAD
MANT. CLIMA
CO2
SALA REUNIONES 1
CLIMATIZACIÓN
BLOQUEO DETECTOR
BLOQUEO PULSADOR
TIEMPO DETECCIÓN
ON/OFF ALUMBRADO
26.1 °C
Set 19.0 °C
NO SI
NO SI
0 Min.
OFF ON
ATENCIÓN: Cuando se bloquea el detector la luz se mantiene encendida permanentemente. Cuando se desbloquea el detector la luz se apaga y se encenderá cuando detecte presenci
La acción de bloquear y desbloquear el detector la hace el pulsador de la sala.
PASILLO
ALMACÉN EPIS
1º AUXILIOS
CUADROS ELEC
PASILLO
ESCALERAS
SALA REUNIONES 2
HALL ENTRADA


FRIO INDUSTRIAL
TEMPERATURAS 1
TEMPERATURAS 2
HUMEDADES Y MEDICIONES
ALARMAS GENERALES
ALARMAS GENERALES 2
12:50
IKNX
+20.0 °C
113459 lux
8.7 m/s
Temperatura Muelles Expedicion y Recepcion
10.3 °C
Temperatura Precámara Fruta y Verdura
12.6 °C
Temperatura Fruta y Verdura
10.9 °C
Temperatura Chocolate
12.8 °C
Temperatura Precámara Refrigerado
3.1 °C
Temperatura Refrigerado
2.3 °C
Temperatura Carne y Pescado
1.1 °C
Temperatura Congelado
-20.2 °C
Temperatura Sandach
-1.6 °C
Alarma Temperatura Alta
Alarma Temperatura Baja


CÁMARAS
Chocolate
Refrigerado
Fruta y Verdura
Congelado
Precámaras
Muelles
Carne y Pescado
Puertas cámaras
Sobrecámaras
12:51
IKNX
+20.0 °C
113459 lux
8.7 m/s
ALARMAS
TIEMPO ALARMAS
15 Horas
Puerta abierta
Puerta cerrada
Alarma tiempo de puerta
Puerta 19
Puerta 18
Puerta 11
Puerta 22
Puerta 12
Puerta 20
Puerta 13
Puerta 1
Puerta 14
Puerta 2
Puerta 3
Puerta 15
Puerta 4
Puerta 5
Puerta 16
Puerta 6
Puerta 21
Puerta 7
Puerta 8
Puerta 9
Puerta 17
Puerta 10

Tensión General Fase-Neutro

8 de abril de 2024 17:03 - 9 de abril de 2024 17:03



Registro General Tensión Fase-Neutro

8 de abril de 2024 17:03 - 9 de abril de 2024 17:03

Descargar

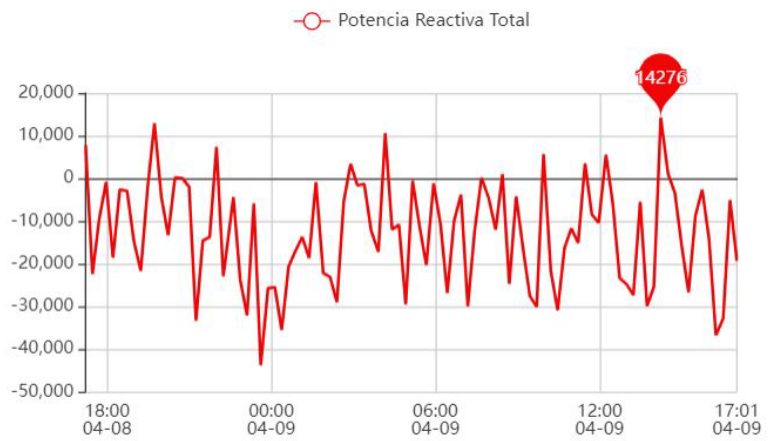
Buscar

Marca de tiempo	Tensión L1-N (V)	Tensión L2-N (V)	Tensión L3-N (V)
2024-04-08 17:11	239,8	238,7	238,6
2024-04-08 17:27	235,9	235,5	235.2
2024-04-08 17:42	237,6	236,3	236,6
2024-04-08 17:57	239.1	238.2	238,7
2024-04-08 18:12	238,8	238.2	238.2
2024-04-08 18:27	234.3	234.2	233,9
2024-04-08 18:42	236.1	236.2	235,9
2024-04-08 18:57	236.2	235,9	235,8
2024-04-08 19:13	238.1	237	236,9
2024-04-08 19:28	237,3	235,6	235,8

Mostrando 1 a 96 de 96 entradas

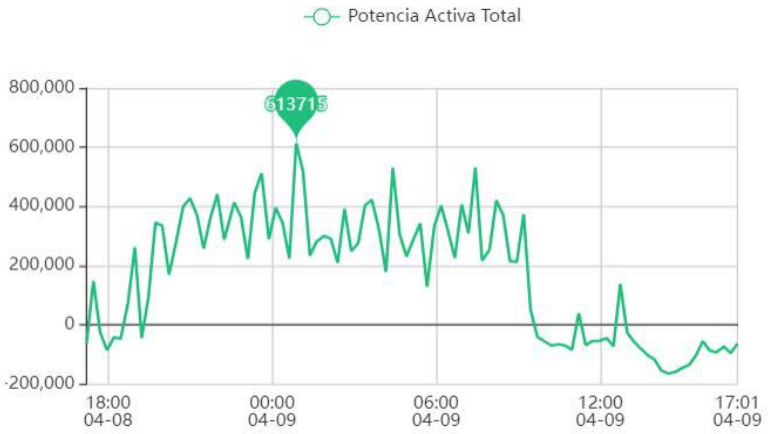
General Potencia Reactiva Total

8 de abril de 2024 17:03 - 9 de abril de 2024 17:03



General Potencia Activa Total

8 de abril de 2024 17:03 - 9 de abril de 2024 17:03



Marca de tiempo	Tensión L1-N (V)	Tensión L2-N (V)	Tensión L3-N (V)
2024-04-08 17:11	239,8	238,7	238,6
2024-04-08 17:27	235,9	235,5	235.2
2024-04-08 17:42	237,6	236,3	236,6
2024-04-08 17:57	239.1	238.2	238,7
2024-04-08 18:12	238,8	238.2	238.2
2024-04-08 18:27	234.3	234.2	233,9
2024-04-08 18:42	236.1	236.2	235,9
2024-04-08 18:57	236.2	235,9	235,8
2024-04-08 19:13	238.1	237	236,9
2024-04-08 19:28	237,3	235,6	235,8
2024-04-08 19:43	232,7	233,5	232.1
2024-04-08 19:58	235.1	236.1	234,6
2024-04-08 20:13	234,8	234,9	233,5
2024-04-08 20:28	235.2	235,8	234.1
2024-04-08 20:43	234	235,3	233.2
2024-04-08 20:58	234,5	236	233,5
2024-04-08 21:14	236,4	237,6	235
2024-04-08 21:29	236,8	237,6	235,3
2024-04-08 21:44	234,5	236.1	233,5
2024-04-08 21:59	234,4	236.1	233.3
2024-04-08 22:14	235,4	236.2	233,5
2024-04-08 22:23	237.1	238,4	235,7
2024-04-08 22:38	235,6	236,7	234.3
2024-04-08 22:53	234,5	235,7	233.1
2024-04-08 23:09	237,9	238,8	236,6
2024-04-08 23:24	236,5	238,8	236.1
2024-04-08 23:39	237	238,4	236
2024-04-08 23:54	239,9	240,9	239
2024-04-09 00:09	236,4	237,7	235,4
2024-04-09 00:24	240,8	241,4	239,4
2024-04-09 00:39	238,3	239,9	237,6
2024-04-09 00:54	238,9	240.3	237,9
2024-04-09 01:10	237,7	238,4	236,6
2024-04-09 01:25	235	235,7	233,9

FRIO INDUSTRIAL 15:37

TEMPERATURAS 1 | TEMPERATURAS 2 | HUMEDADES Y MEDICIO

Temperatura exterior	+20.5 °C
Temperatura Muelles Expedicion y Recepcion	9.9 °C
Temperatura Precamara Fruta y Verdura	10.8 °C
Temperatura Fruta y Verdura	10.7 °C
Temperatura Chocolate	13.9 °C
Temperatura Precamara Refrigerado	3.5 °C
Temperatura Refrigerado	4.0 °C
Temperatura Carne y Pescado	0.6 °C
Temperatura Congelado	-19.0 °C
Temperatura Sandach	-0.5 °C

Alarma Alta Muelles

CÁMARAS 15:36

Chocolate | Refrigerado | Fruta y Verdura | Congelado | Precámara

TEMPERATURA

Temperatura	13.9 °C
Valor velocidad del viento	5.2 m/s
Luminosidad exterior	110100 lux
Temperatura exterior	+20.5 °C

Alumbrado 2

Alumbrado 1

OFICINAS 15:36

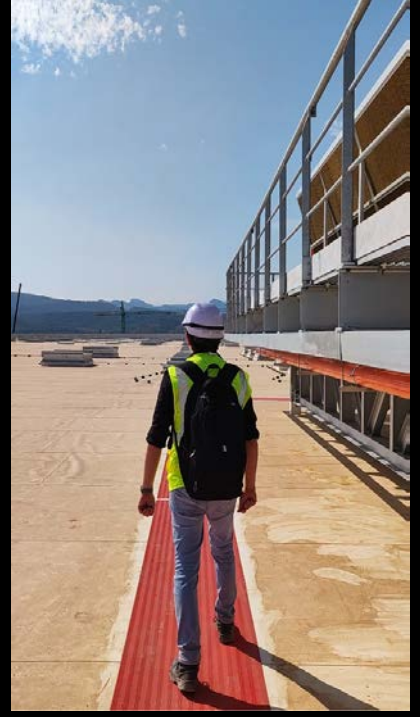
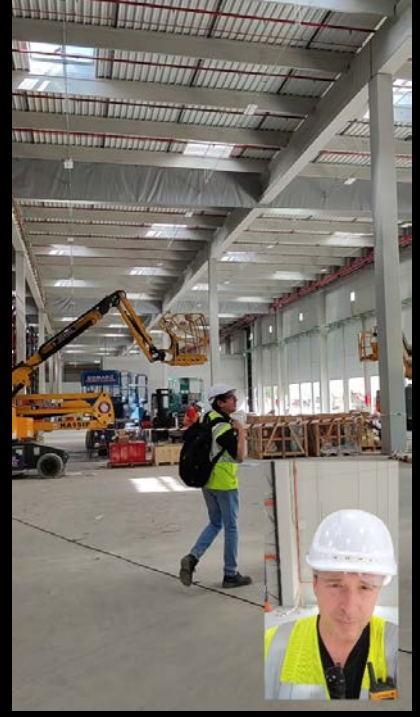
Oficina Administración P.B. | Oficina Administración P.A. | Ofici

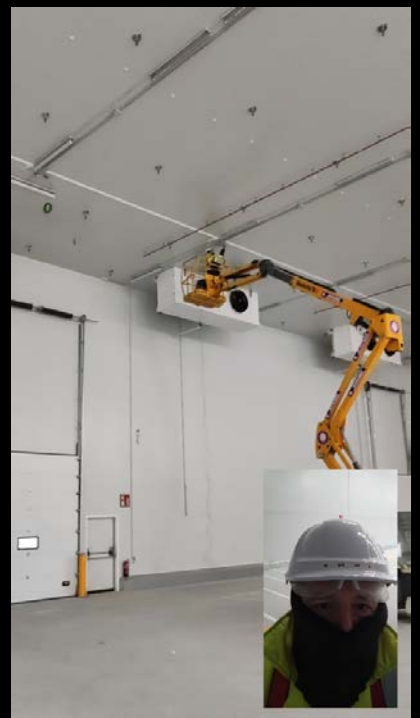
- Todo Alumbrado OFF
- Todo Alumbrado ON
- Todo Clima OFF
- Todo Clima ON
- TEMPERATURA
- HUMEDAD
- CO2
- Comedor y sala multiusos
- Vestuarios
- Sala Rack P.B.
- Sala reuniones 1

SECO 15:36

Zona 1 (Expedición) | Zona 2 (Expedición) | Zona 3 (Estanterias)

- Temperatura exterior
- Temperatura exterior +20.5 °C
- Luminosidad exterior
- Luminosidad exterior 110100 lux
- Velocidad del viento exterior
- Valor velocidad del viento 5.2 m/s
- Lluvia si/no
- Alumbrado 1 zona 1
- Consigna lux alumbrado 1 zona 1 129925 lux
- Alumbrado 2 zona 1
- Consigna lux alumbrado 2 zona 1 129925 lux

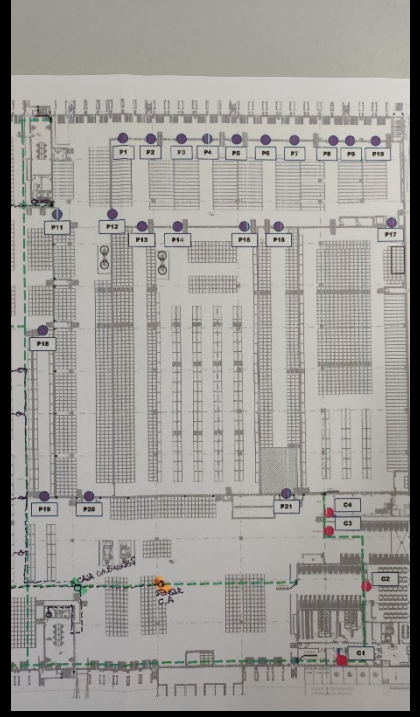
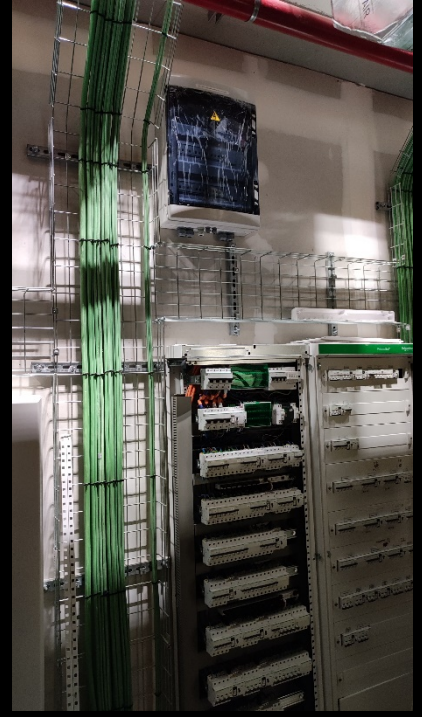
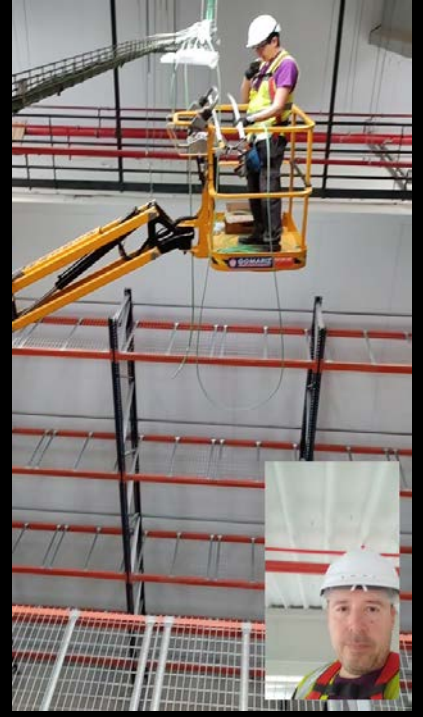


TWO YEARS IN PICTURES

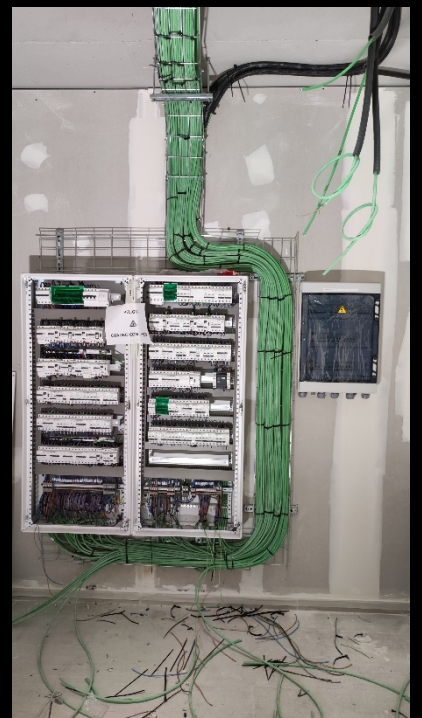
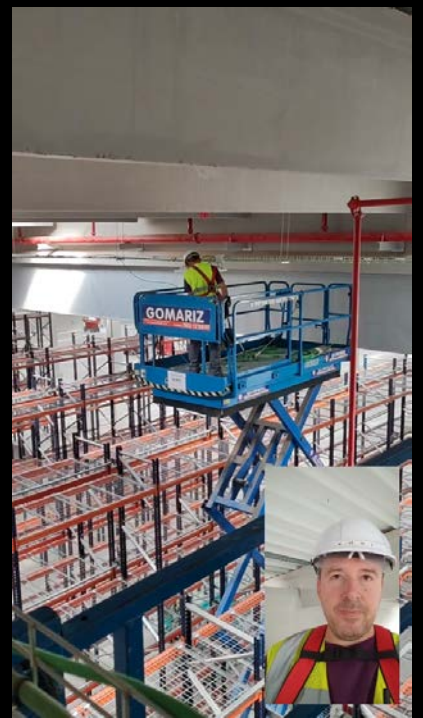
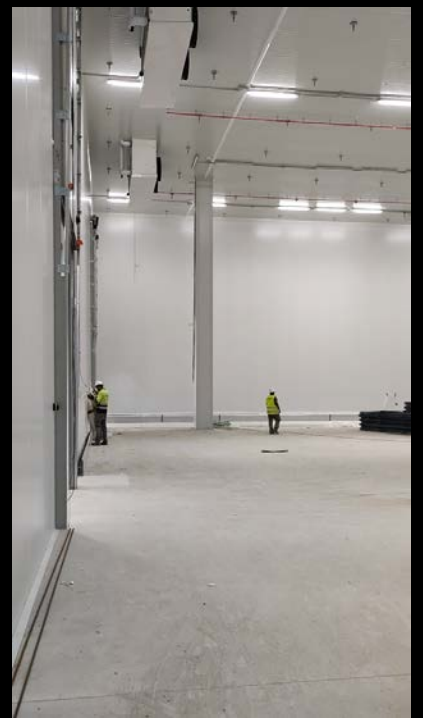
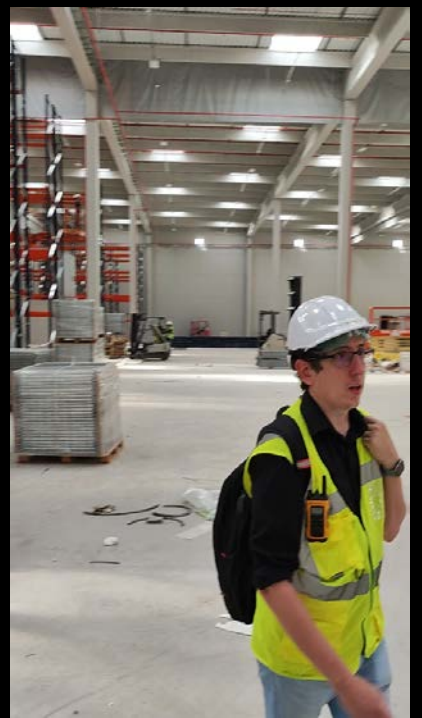
It has been two years of hard work behind us. We have met numerous technicians and professionals from the construction sector who have become our family during many months away from home. With them we have learnt many things we did not know about different disciplines and we have worked side by side to create this great project in record time.

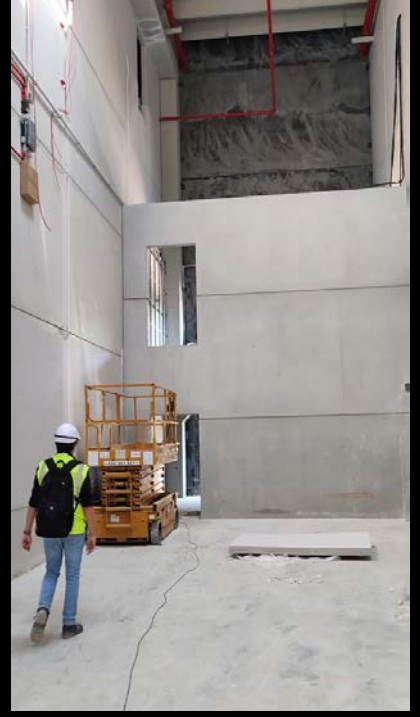
We like to document all our projects with photos and videos and this one in particular has given us many hours of video and hundreds of photos that we will use in the training courses that our technical team gives to students and professionals who want to enter the world of KNX installations.

Here is a sample of photographs of those days when we were on site, connecting equipment, testing and setting this great project in motion.

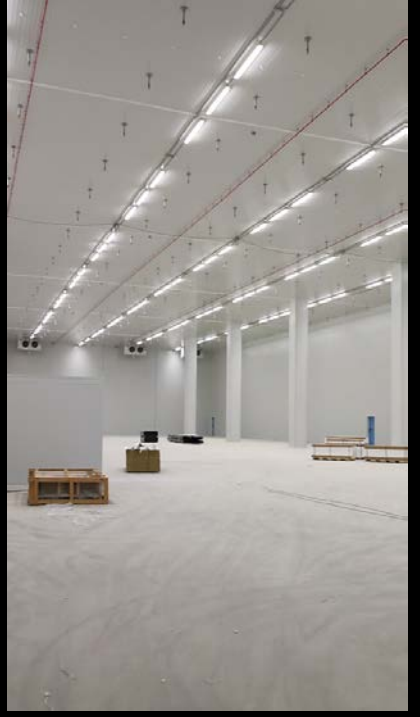





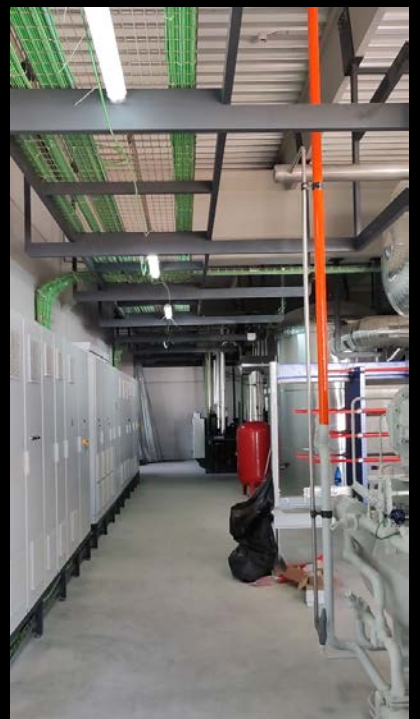
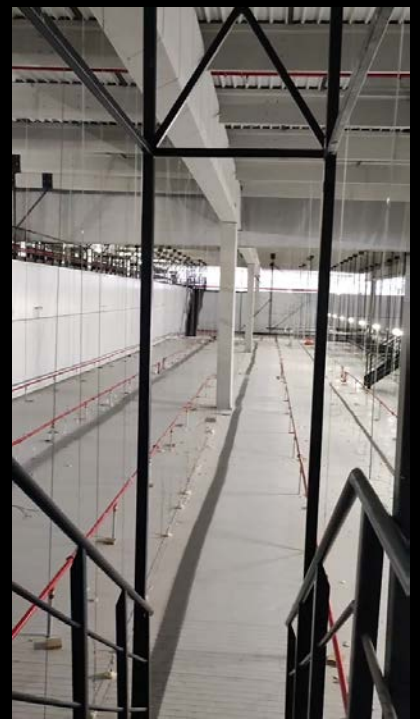
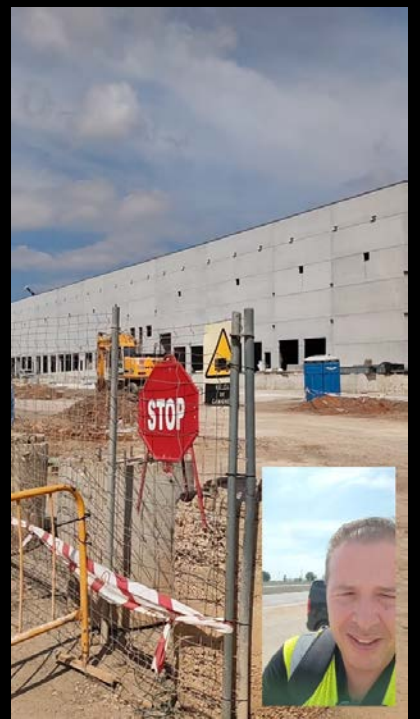





GOMARIZ





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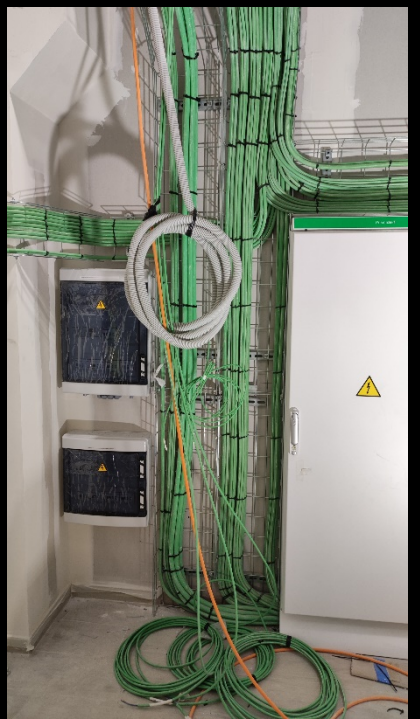
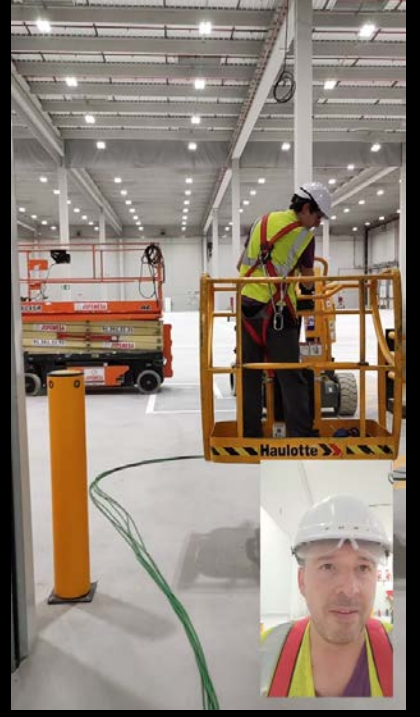
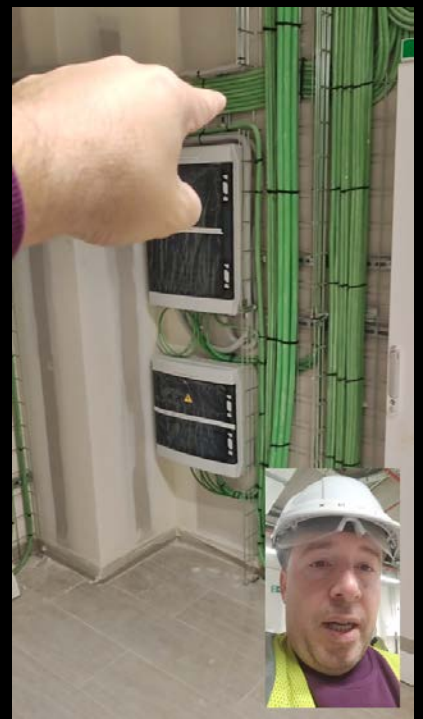


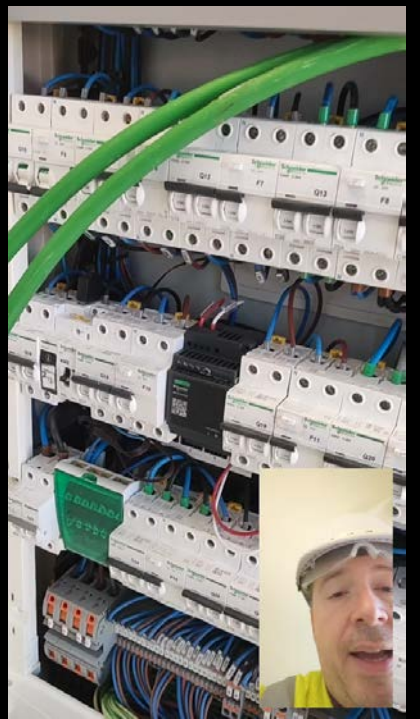
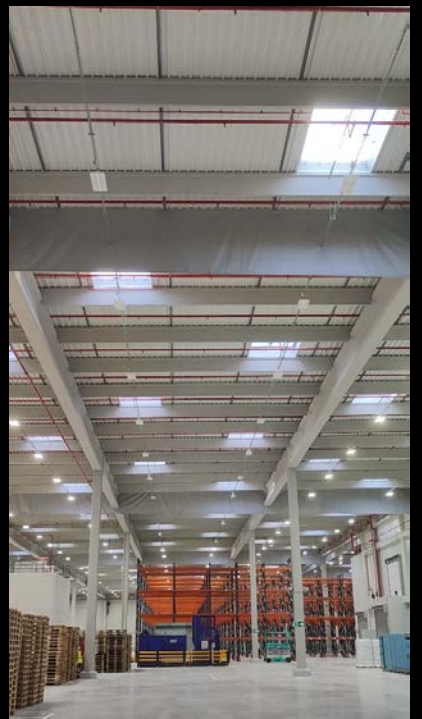


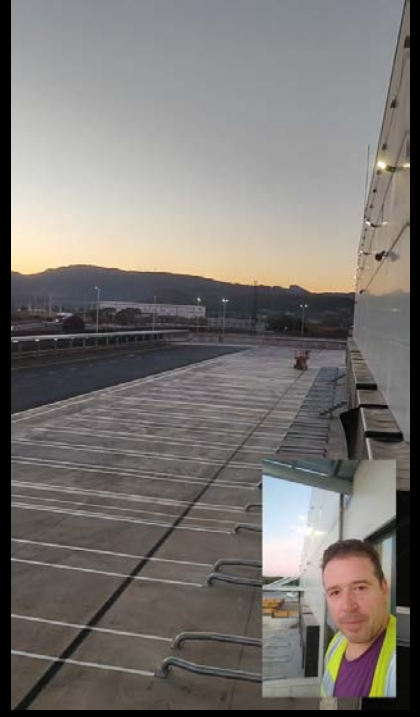


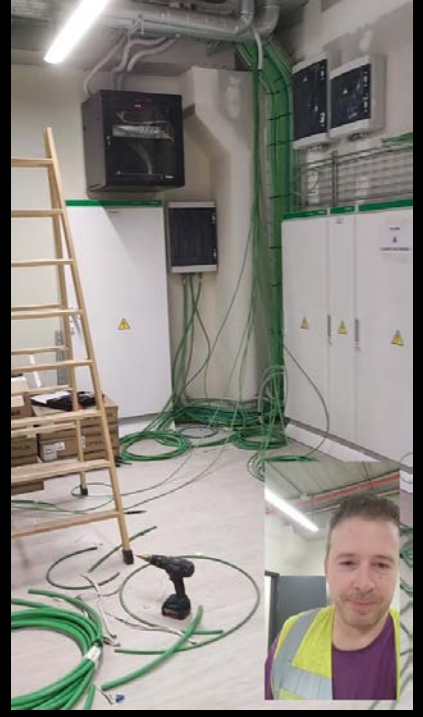

Haulotte

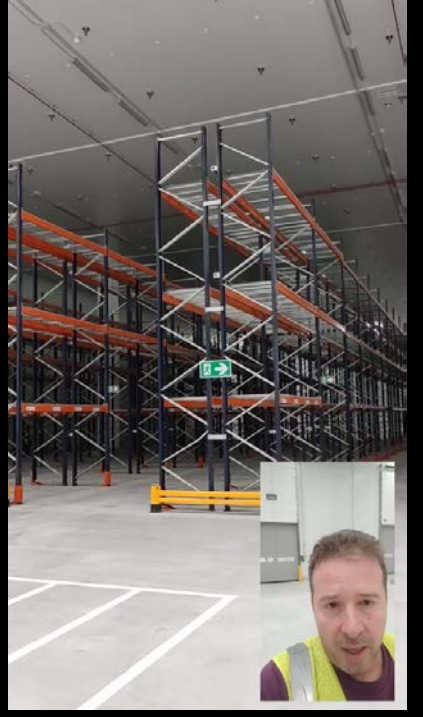


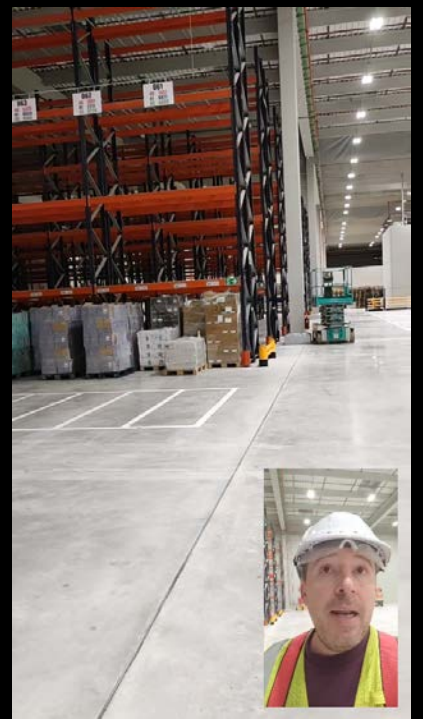
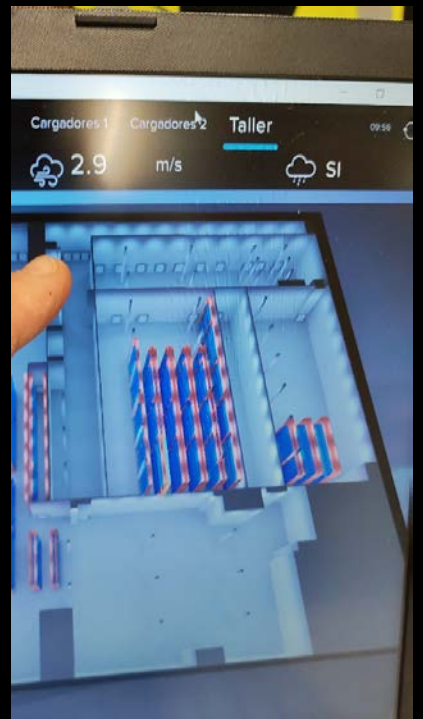







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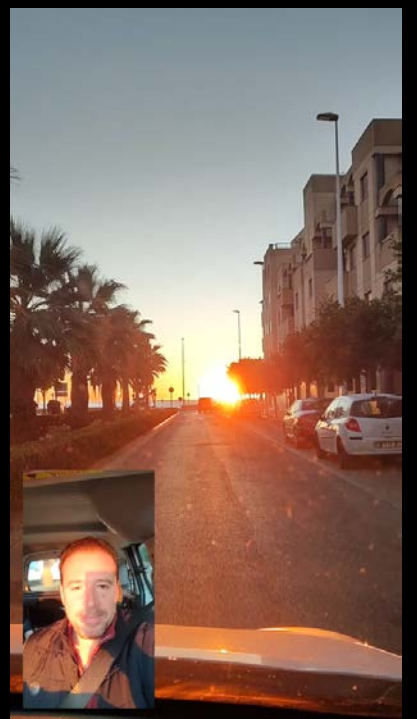
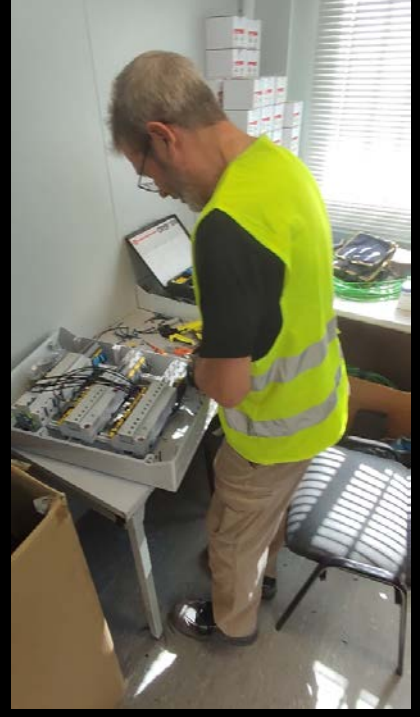
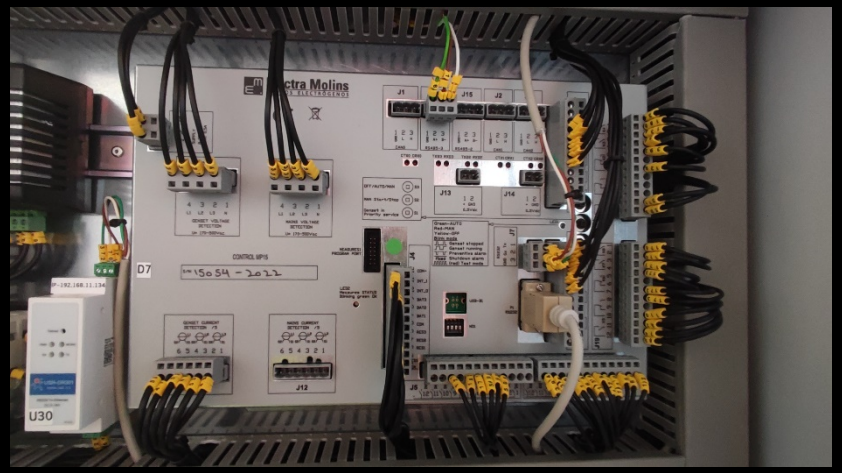
Cargadores 2
Taller
09:56
2.9
m/s
SI


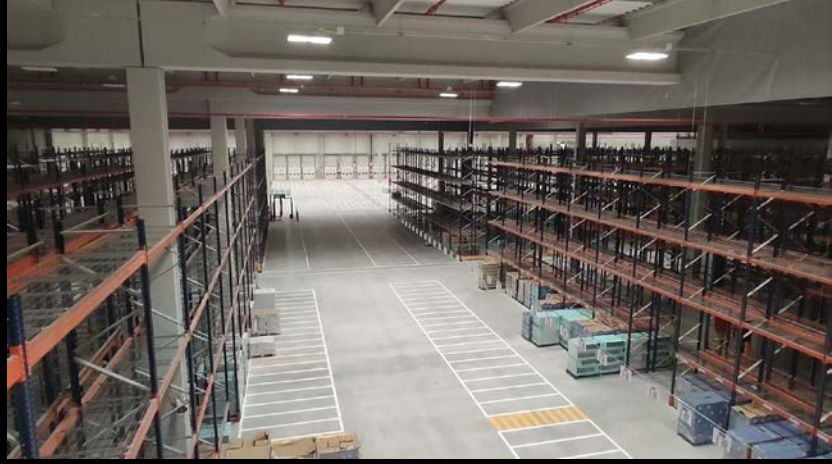
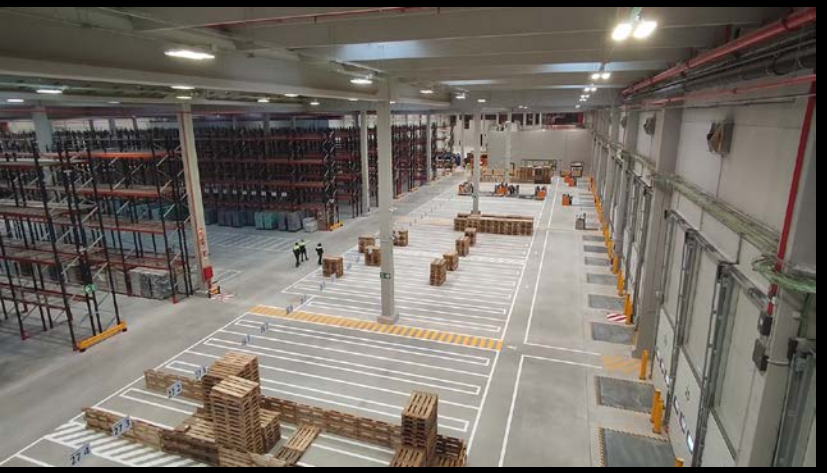
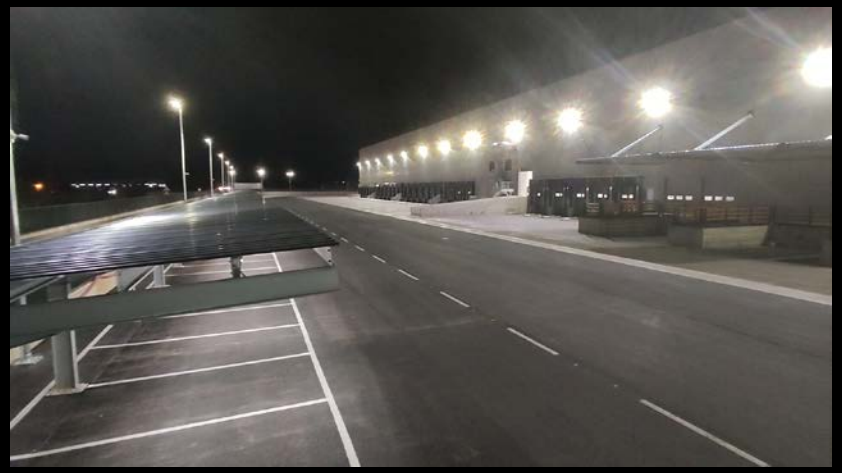

SIEMENS
SWG1 125 – 1AB22
SIEMENS
SWG1146-1AB03
GAMMA instabus

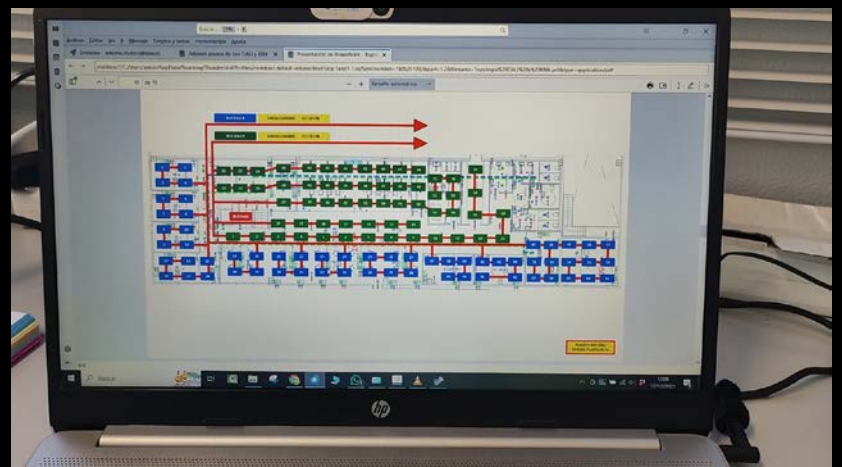



Electra Molins
U30


EUROPEA
96 121 18 35
ALQUILER
HA15IP
EUROPEA



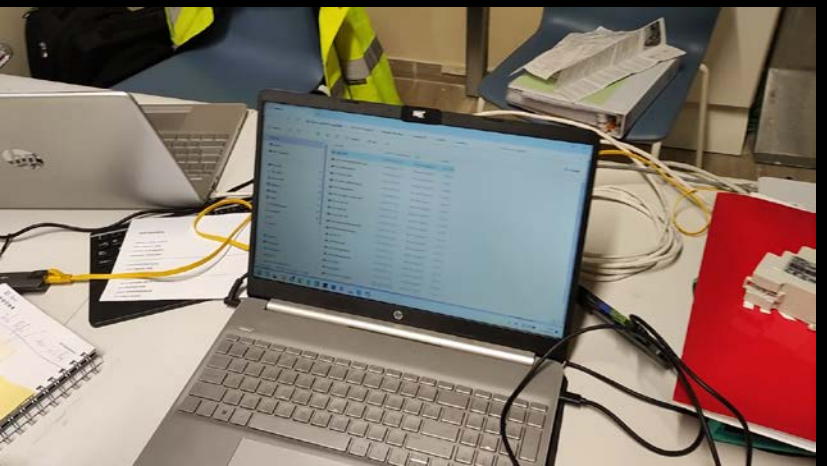






KNX


L-DALI
Power Supply
LOYTEC
LDALI-ME204-U
L-DALI
BACnet DALI Controller




Termostato
18.2°C
ON
19.0 °C
High


EXTINTOR


ALDI


ALDI

SUMMARY OF SOLUTIONS INCLUDED IN THE PROJECT

- ✓ Control of the interior and exterior lighting system by presence detection, constant light and time regulation
- ✓ Technical alarm control of DALI system.
- ✓ Visual comfort control.
- ✓ Air quality monitoring.
- ✓ Thermal comfort control.
- ✓ Air conditioning system control.
- ✓ Extraction system control.
- ✓ Control of the fire-fighting system.
- ✓ Control of the exhaust system.
- ✓ Solar tracking by weather station.
- ✓ Analysis of outdoor weather conditions.
- ✓ Monitoring, control and analysis of water consumption.
- ✓ Monitoring, control and analysis of power consumption.
- ✓ Monitoring and control of gensets.
- ✓ Monitoring and control of uninterrupted power supply systems U.P.S..
- ✓ Monitoring and control of the photovoltaic system.
- ✓ Control of the evacuation alarm system.
- ✓ Control of environmental quantities in technical rooms.
- ✓ Wastewater system monitoring.
- ✓ Monitoring of the storm surge arrester system.
- ✓ Monitoring and control of electrical panels.
- ✓ Monitoring and control of the industrial refrigeration production plant.
- ✓ Monitoring of critical alerts such as industrial gas leaks.
- ✓ Voice control of the system.
- ✓ Lift fault warning monitoring.
- ✓ Monitoring and alerting of refrigerating chambers temperatures.
- ✓ Monitoring and control of refrigerating chambers doors.
- ✓ Monitoring and control of dehumidifiers.
- ✓ Tank level monitoring and alerting.
- ✓ Security camera monitoring.
- ✓ Electric car charging control.
- ✓ Sectorised water supply control.
- ✓ System access via PC, Tablet and Smartphone.
- ✓ Hierarchical user access system.
- ✓ Monitoring and control of the KNX power supply system with diagnostic module.
- ✓ KNX Secure communications security system.
- ✓ Monitoring of the overpressure system in evacuation corridors.
- ✓ Cloud-based data storage with graphing and information reporting.

TO CARRY OUT THE PROJECT WE NEEDED :

- ✓ A total of 10,240 working hours.
- ✓ 3 Project engineers specialised in KNX systems.
- ✓ 4 Support technicians for installation and assembly.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